



Third West Weekly Report Shepherd, Michael

Joyce Ackerman, 'Craig Barnitz (cbamitz@utah.gov)'

11/16/2011 11:00 AM

Hide Details

From: "Shepherd, Michael" < Michael. Shepherd@PacifiCorp.com>

To: Joyce Ackerman/R8/USEPA/US@EPA, "'Craig Bamitz (cbamitz@utah.gov)'" <cbamitz@utah.gov>

History: This message has been replied to.

7 Attachments









Weekly Reports 11-07-11 through 11-13-11.pdf Third West Weekly Log 2011-45.pdf 223858-1.pdf 223951-1.pdf







224038-Lpdf 224232-1.pdf 224233-1.pdf

Joyce & Craig,

Attached are the reports for the week of November 7, 2011.

All air monitoring results came back negative, except the positive hit on November 7, 2011. It was one fiber of chrysolite, this was reported last week.

Please let me know if you have any questions.

Thanks,

Mike Shepherd-

Project Manager
Rocky Mountain Power - Major Projects
801.220.4584 Office
801.631.1310 Cell
801.220.2797 Fax
michael.shepherd@pacificorp.com



November 15, 2011

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 224233-1 None Given

Project Description:

Rocky Mtn. Power 3rd West Sub Station

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 224233-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 224233-1

Client:

R & R Environmental

Ciient Project Number / P.O.: None Given

Client Project Description:

Rocky Mtn. Power 3rd West Sub Station

Date Samples Received:

November 14, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

November 15, 2011

Client ID Number	Lab ID N	umber	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W 111011-E	EM	824079	0.0800	1022	ND	0.0047	BAS	BAS
3W 111011-S	EM	824080	0.0800	1022	ND	0.0047	BAS	BAS
3W 111011-N	EM	824081	0.0800	1007	ND	0.0048	BAS	BAS
3W 111011-W	EM	824082	0.0800	1022	ND	0.0047	BAS	BAS

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.010

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

ll

Digitally signed by Elisha Ellerman DN: CN = Elisha Ellerman, C = US, O = Reserveirs Environmental.

Inc. Date: 2011.11.15 12:37:39 -07'00'

DATA QA

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:

RES 224233-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description: Rocky Mtn. Power 3rd West Sub Station

Date Samples Received:

November 14, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

November 15, 2011

Client ID Number	Lab ID Ni	umber	Asbestos Mineral	Asl	pestos Str	ucture Typ	pes*	Structures >5 Microns in Length	**Excluded Structures	Asbestos Structures for
			-	Fibers	Bundles	Clusters	Matrices	_		Concentration
3W 111011-E	EM	8 24 079	ND	0	0	0	0	0	0	0
3W 111011-S	EM	824080	ND	0	0	0	0	0	0	0
3W 111011-N	EM	824081	ND	0	0	0	0	0	. 0	0
3W 111011-W	EM	824082	ND	0	0	0	0	0	0	0

^{*}See Analytical Procedure for definitions

ND = None Detected

^{**}C = Excluded from total due to lack of confirmation

^{**}L = Excluded from total for length less than 0.5 micron (AHERA only)

^{**}A = Excluded from total due to incorrect aspect ratio

Due Date:	11.1511
Due Time;	9200

REI LAB RESERVEBITS ENVIRONMENTAL, INC... 5801 Logan St. Denver, CO 80216 - Ph; 303 884-1986 - Fax 303-477-4275 - Toli Free: :966 REBI-ENV

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njed Number ang/or P.O. F:					Pin	ei Den	Derv	e[]ble	En ut	l Add	M88;										
refect Description/Location: Rocky Mfn Power 3th West Sub Station																					
SBESTOS LABORATORY HOURS: Weekdaya: 7am - 7pm					REQU	E8T	ED/	٩NA	LYS	318					VA	LID	MAT	RIX CC	DES	Ļ	AB NOTES:
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salmonella, Listeria, E.coli, APC, Y & M48 Hr3-6 Day	5	7	SO-ha	3	1 6				*		3	entification .	×	1 .	Ì						
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epply for ensrhoum, woekends and bolidays.**	Short report	- AHERA,	quant, Micro-vac, - 7400A, 7400B,	- Total	₹ 5	-S	Setmoneda: +f-	2		≱ ≱	1	‡ ‡	MPLER'S INSTIALS OR OTHER	Volume	1	9 8				j	
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iumber of samples received: (Additional samples shall be list																			·		
NOTO: RET wis ensiges insoming samples based upon fill firm after received and will not be responsible for errors or omission energials as implicated on this Chain of Customy startly constitute an energials asserted a spreament with payment terms of NET	ns in calcul	lations	resulting	g front	the inacc	uracy	of origi	inel de	8ts. 8	y eigi	ning cik	nVcqr	TORNY O	epresente	tive er	rees t	hat subi	mission of	the following s	emples for	requested .
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Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

Α	=	Amosite	F =	Fiber
An	=	Anthophyllite	B =	Bundle
C	=	Chrysotile	C =	Cluster
Cr	=	Crocidolite	M =	Matrix
Т	=	Tremolite		,

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

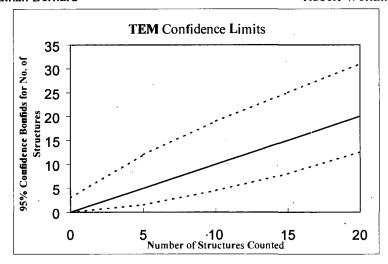
Sizing Conversion
1 length unit = 5 mm on screen = 0.278 micron

1.80 length units = 0.5 micron 18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Reservoirs Environmental, Inc. TEM Asbestos Structure Count

Laboratory name:	RÈI
Instrument	JEOL 100(N) S
Voltage (KV)	100 KV
Magnification	ZÓKXTOKX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Туре	

Client:	RXX
Samole Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1022
Date received by lab	n/rt/n
Lab Job Number	224235
Lab Sample Number:	8240 79
Lab Sample Number:	8240 79

Analyzed by	JB
Analysis date	ntsla
Method (D=Direct, I=Indirect,`	
IA=indirect, ashed)	D
Counting rules	
(ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Pr	eps Only):
Fraction of primary filter used	
Total Resuspension Volume (mi)	
Volume Applied to secondary filter	

Grid	Grid Opening	Structure	No. of Str	ructures	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	= no
	Ond Opening	Туре	Primary	Total	Length	Width	Identinodion	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	15-6	MD					,							
	145-6	ND					: ,		, .				·	
	65-6	ND				Pno	5 A 9 (-	3-80%	inf	mf	3-5%	debi	، در	
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B	K5-1	ND					·	4	5	แกร่เ		·		
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	G15-1	ND												
	F5-1	(2)	维拉威克											
		÷												

Reservoirs Environmental, inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100 (N)S
Voltaae (KV)	100 KV
Magnification	20KX OKX
Grid opening area (mm2)	0.011
Scale: 1L =	0,28 um
Scale: 1D =	0.056 um
Primary filter area (mn)2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	RHK
Sample Type (A=Alr, D=Dust):	A
Air volume (L) 'or dust area (cm2)	1022
Date received by lab	11/14/n
Lab Job Number:	224235
Lab Sample Number	8240 80

Analyzed by	JB
Analysis date Method (D=Direct, 1=Indirect,	ulzh.
IA=Indirect, ashed) Counting rules	D
(ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scooe Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):				
Fraction of primary filter used				
Total Resuspension Volume (ml)				
Volume Applied to secondary lilter (ml)				

Grid	Grid Opening	Structure	No. of Str	mctures	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	= no
	Cha Oponing	Type	Primary	Total	Length	Wkith	Idontinoation	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H4-1	ND		• •										
	64-1	ND			Pms	Λ	60%	intent	5	-7º	belens			
	F4-1	ND		•	Purp	B	80 %	oin fint	5-	7%	debn's			
	E4-1	ND					•							
B	K4-3	ND						13	15/					
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	64-3	MD					·							
	F4-3	M)_										{		

Reservoirs Environmental, inc. TEM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100/N) S
Voltage (KV)	100 KV
Maanification	20KX OKX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	RHK
Sample Type (A=Alr, D=Dust):	A
Air volume (L) or dust area (cm2)	1007
Date received by lab	(1)14 n
Lab Job Number:	224233
Lab Samole Number:	8240 6
Lab Samole Number:	82408

F-Factor Calculation (Indirect Preps	Olly).	<u>.</u>
Fraction of primary litter used	•	
Total Resuspension Volume (mi)		
Volume Applied to secondary filter (ml)		_

Analyzed by	JB
Analysis date Method (D=Direct, 1=Indirect,	11/15/11
IA=indirect, ashed) Counting rules	T)
(ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scooe Alignment	Date Analyzed

Grid	Grid Opening	Strncture	No. of Str	uctures	Dime:	nsions	Identification	Mineral Class				1 = y	es, blank	: = no
		Туре	Primary	Total	Length	Width	- a on a month	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EOS
A	K4-6	ND												
	144 -le	ND			P	ns A	1.60	Linha	·	3 '	& debits			
	614-6	M			Pa	5 [3 70	oh in hu	f	3 0	bdebus			
	F4-6	NO								·				
B	L3-3	ND					14	11/15/11						
	K3-3	ND					77	1 1						
	H3-3	MD					,							
	63-3	M										·		
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				,		, .							·	

Reservoirs Environmental, Inc. 7EM Asbestos Structure Count

Laboratory name:	REI
Instrument	JEOL 100/N)S
Voltage (KV)	100 KV
Magnification	ZOKX TOKX,
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.0 56 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client :	RHK
Sample Type (A=Alr, D=Dust):	A
Air volume (L) or dust area (cm2)	1022
Date received by lab	11/14/n
Lab Job Number:	224233
Lab Sample Number:	8240 82

F-Factor Calculation (Indirect Pr	reps Only):	
Fraction of primary filter used		
Total Resuapension Volunie (ml)		
Volume Applied to secondary filter (ml)		

Analyzed by	JB
Analysis date	ulski
Method (D=Direct, 1=Indirect,	· · · · · · · · · · · · · · · · · · ·
(A=Indirect, ashed)	D
Counting rules	
(ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class	Mineral Class			1 = yes, blank = no		
<u></u>		Туре	Primary	Total	Length	WMth	100111110211011	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EOS
A	F4-6	ND												
	E4-6	·ND					· •	/						
	C4-6	ND			Pw	05	WB.	~ 80%	John	7	3-5% de	bra		
	B4-6	MD								·				
B	H3-4	VD												
	63-4	ND		· ·					. ,			,		
	F3-4	ND												
	E3-4	MD				,								

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{\text{IL}}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station			Date: <u>11/07/11</u>					
Location:	3rd West, 1st South, SLC	Job Number:						
Survey Condu	acted By: <u>Justin Kargis</u>		Title:					
		In Compliance	Out of Compliance	N/A	Corrective Action Taken and			
St <i>an</i> dard	Title				Da te			
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x				
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			х				
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x						
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	·			
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			х				
1926 100 (2)	Head protection, where there is a possible	x						

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	х	1		
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	,
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	D ebris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	A
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

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		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title		\Box		Date
1926.451 (a)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			х	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	,
1926.102 (a) (1)	Eye and face protection shall be provided.	x .	,		
1926.300 (b)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			х	

Standard	<i>Titl</i> e	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom ór basket.			X	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title		_		Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	х			
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			•
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.	x			·
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			х	

Comments:

R&R collected 4 samples of imported fill used to set cable trench on west side of new control building. Samples were packaged and sent overnight via FedEx to laboratory.

New control building delivered early a.m. and placed on foundation in zone 1 throughout the day.

CVE removed forms from G structure stems.

Newman continued backfilling and compacting around G structure spread footings.





3^{RII} WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

			DAILY CHECKLIST
DA	TE:_		11/07/11
	Gene	rai	
	<u>Gene</u> ☑	141	Work area Health and Safety Inspection
	NA		Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
	1474		activities for the day
	NA		Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior
	1 1/2 2		to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
	NA		Site hazard and safety instruction for ail first time employees, contractors or visitors
	NA		Complete Employee Meeting Record Form B (where applicable
	NA		Document required Respirator Training completion with Form H
٧A	1 47 %		Record times and numbers of dump trucks and trailers as they leave the site with
***			contaminated material.
NA			Confirm return of waste material manifest documents for each load with site
٧A	C	omnl	manager. ete all CSHASP Forms (for applicable activities planned for that day)
1/1	N.		Illness/Injury Report Form A
	N.		Site-Specific Training Record Form C
	N.		Hot Work Permit Form D
	. N		Trench/Evacuation Permit Form E
	N.		Combined Space Entry Permit From F
	N.		Exclusion zone operations are practiced as instructed.
	14.	/1	NA Decontamination unit is working properly.
			NA Workers are using decontamination unit as instructed.
			NA Workers use personal protective equipment properly.
			workers use personal protective equipment property.
	$\overline{\mathbf{Q}}$		Set air samples at cardinal compass points around exclusion zone. Check
			throughout the day to ensure proper operation.
	$\overline{\mathbf{Q}}$		Observe control measures for dust and fugitive materials i.e. watering excavation sites and
			track out prevention.
			Review sign-in/sign-out log throughout and at the end of the workday.
	V		Secure the site at the end of the workday
	Samp	oling	
7			Soil Confirmation sampling for any newly excavated areas
Ø			Stationary Air Monitoring during contaminated soil removal around the perimeter of the
			exclusions zone
	NA		Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil
			removal
	NA		Digitally photograph each sample location and at any place field sampling personnel determined necessary





NA Electronically file photo files into the on-site database \square Complete Field Documentation Field Sample Data Sheets (FSDS) \square \square Logbook NA On-site computer database Label each sample media with a unique number \square Seal sample(s) in zip lock plastic bags Complete and include Chain of Custody (COC) Form required for shipping of samples to ☑ appropriate laboratory Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental \square Samples NA Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees NA Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project:	3rd West Sub Station	Date:	11/8/11
Location:	3rd West, 1st South, SLC	Job Number:	
Survey Conducted By:	Jon Craig	Title:	IH Te chnician

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title Hazard Communication Program, List of			x	Date
1926.59	Chemicals, Training, MSDSs.				
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x	
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			x	
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x	
1926.100 (a)	Head protection, where there is a possible danger of head injury.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.	x			
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			x	·
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	,
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.	x ,			
1926.403 (b)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	x			

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title			□ `	Date
1926.451 (a)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.	x)
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			х	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.	x			
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x			
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			x	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	x			
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.	x	. <i>´</i>		

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		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title			\Box	Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			х	·
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			·
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	,		х	
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	,
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			х	٠
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

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		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			×	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			,
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.	x			

Comments:

Newman backfilling around the Footings and pillars/stems in the main excavated pit.

CVE framing last two pillar/stems in the main excavated pit.

No disturbance of contaminated soil in the exclusion zone.





3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

	DAILY CHECKLIST
DATE:	11/8/11
General	
	Work area Health and Safety Inspection
NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
1 17 1	activities for the day
NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	Complete Employee Meeting Record Form B (where applicable
NA	Document required Respirator Training completion with Form H
NA	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA	Confirm return of waste material manifest documents for each load with site manager.
NA	Complete all CSHASP Forms (for applicable activities planned for that day)
NA	Illness/Injury Report Form A
NA	Site-Specific Training Record Form C
NA	Hot Work Permit Form D
NA	Trench/Evacuation Permit Form E
NA	Combined Space Entry Permit From F
NA	Exclusion zone operations are practiced as instructed.
	NA Decontamination unit is working properly.
	NA Workers are using decontamination unit as instructed.
	NA Workers use personal protective equipment properly.
Ø	Set air samples at cardinal compass points around exclusion zone. Check
	throughout the day to ensure proper operation.
☑ .	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
◩	Review sign-in/sign-out log throughout and at the end of the workday.
	Secure the site at the end of the workday; PacifiCorp Employee
Sampling	
NA	Soil Confirmation sampling for any newly excavated areas
NA	Stationary Air Monitoring during contaminated soil removal around the perimeter of the
	exclusions zone
NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary





Electronically file photo files into the on-site database NA Complete Field Documentation ablaablaField Sample Data Sheets (FSDS) \square Logbook NA On-site computer database Label each sample media with a unique number abla $\overline{\mathbf{A}}$ Seal sample(s) in zip lock plastic bags ablaComplete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory \square Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples ablaReview and disseminate sample restilts as received from the laboratories to Project Manager and other appropriate managers and employees NA Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station		Date: 11/09/11					
Location: 3 rd West, 1 st South, SLC			Job Number:				
Survey Conducted By: <u>lustin Kargis</u>			Ti	it 1e: _			
		In Compliance	Out of Compliance	N/A	Corrective Action Taken and		
Standard	Title				Da te		
1926.59	Hazard Communication P rogram, List of Chemicals, Training, MSDSs.			x	·		
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x			
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.	х					
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х			
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toe boards shall be installed.			x			
1926.100 (a)	Head protection, where there is a possible danger of head injury.	х					

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b) (1)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toe boards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	D ebris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			х	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			х	
1926.403 (b)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.	х			,

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a)	Scaffolding shall have guardrails and toe boards when more than 10 feet high and when less than 45 inches of work space.			х	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			х	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	х			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			х	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.	x	_		
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	х			
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.		•	х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	x			· · · · · · · · · · · · · · · · · · ·
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.	x			
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.	x			
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f) (7)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer or the tool is double insulated.	x			
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

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		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title :				Date ,
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.	x	- -		
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	х			
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.	x			•
1926.550 (b)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968: The most recent certification shall be on file until a new one is prepared.			x	

Comments:

Bi-Weekly meeting discussions: Addressed contaminated fill imported to site. Decided to meet on site to discuss further. Eldon was on the phone for meeting. Waiting for soil sample report from laboratory to make decision on imported fill around cable trench.

R&R conducted 4-hour asbestos awareness class for 3 Newman employees. Upon completion of class, workers were given helmet stickers.

Newman continued backfilling and compacting around G structure spread footings.





3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

		DAILY CHECKLIST
)A	TE:	11/09/11
	Camanal	
	<u>General</u> ☑	Work area Health and Safety Inspection
	NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
	IVA	activities for the day
	NA	Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
		Site hazard and safety instruction for all first time employees, contractors or visitors
	NA	Complete Employee Meeting Record Form B (where applicable
	NA	Document required Respirator Training completion with Form H
NA	1	Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA		Confirm return of waste material manifest documents for each load with site manager.
NA	Comp NA	lete all CSHASP Forms (for applicable activities planned for that day) Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
	NA	Exclusion zone operations are practiced as instructed.
	,	NA Decontamination unit is working properly.
	,	NA Workers are using decontamination unit as instructed.
		NA Workers use personal protective equipment properly.
		Set air samples at cardinal compass points around exclusion zone. Check throughout the day to ensure proper operation.
		Observe control measures for dust and fugitive materials i.e. watering excavation sites and
		track out prevention.
		Review sign-in/sign-out log throughout and at the end of the workday.
	Ø	Secure the site at the end of the workday
	Sampling	
NA	L	Soil Confirmation sampling for any newly excavated areas
₫		Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
	NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
	NA	Digitally photograph each sample location and at any place field sampling personnel determined necessary





NA	Electronically file photo files into the on-site database
	Complete Field Documentation
\square	Field Sample Data Sheets (FSDS)
\square	Logbook
NA	On-site computer database
\square	Label each sample media with a unique number
\square	Seal sample(s) in zip lock plastic bags
Ø	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
Ø	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
NA	Review and disseminate sample results as received from the laboratories to Project
	Manager and other appropriate managers and employees
NA	Electronically file sample reports into on-site database



determined necessary



3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

		<u>DAILY CHECKLIST</u>
DATE	::	1/10/11
Ca	neral	
<u>G</u>	iller at	Work area Health and Safety Inspection
NA		Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
142	1	activities for the day
NA		Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
NA	\	Site hazard and safety instruction for all first time employees, contractors or visitors
NA	\	Complete Employee Meeting Record Form B (where applicable
NA	A	Document required Respirator Training completion with Form H
NA ·		Record times and numbers of dump trucks and trailers as they leave the site with
D. 1		contaminated material.
NA		Confirm return of waste material manifest documents for each load with site manager.
NA	Compl	ete all CSHASP Forms (for applicable activities planned for that day)
1 12 1	NA	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
	NA	Exclusion zone operations are practiced as instructed.
	1 1/2 %	NA Decontamination unit is working properly.
		NA Workers are using decontamination unit as instructed.
•		NA Workers use personal protective equipment properly.
	•	workers use personal protective equipment property.
		Set air samples at cardinal compass points around exclusion zone. Check
_		throughout the day to ensure proper operation.
Ø		Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
		Review sign-in/sign-out log throughout and at the end of the workday.
Ø		Secure the site at the end of the workday
<u>Sa</u>	mpling	
TAT A		Soil Confirmation compling for any needly associated and
NA ☑		Soil Confirmation sampling for any newly excavated areas Stationary Air Monitoring during contaminated soil removal around the perimeter of the
		exclusions zone
NA	\	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
NA	A	Digitally photograph each sample location and at any place field sampling personnel





NA Electronically file photo files into the on-site database ablaComplete Field Documentation Field Sample Data Sheets (FSDS) ablaLogbook NAOn-site computer database ablaLabel each sample media with a unique number ablaSeal sample(s) in zip lock plastic bags Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory ablaPackage samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples NA Review and disseminate sample results as received from the laboratories to Project Manager and other appropriate managers and employees NA Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station		Date: 11/11/11					
Location: 3 rd West, 1 st South, SLC			Job Number:				
Survey Conducted By: <u>lustin Kargis</u>		Title:					
		In Compliance	Out of Compliance	N/A	Corrective Action Taken and		
Standard	Title				D a te		
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x			
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x			
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.			x			
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.	,		х			
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			x			
	Head protection, where there is a possible	x					

1926.100 (a)

danger of head injury.

	• '				
		In Compliance	Out of Compliance	N/A	
Standard	Title				Corrective Action Taken and Date
1926.652 (a)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			х	·
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			х	
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	Debris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			х	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.			x _	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			x	
1926.403 (b)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.			х	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	<i>Tit</i> le				Date
1926.451 (a)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			x	
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.			x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	-
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			x	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.			x	
1926.150 (c) (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	
1926.102 (a) (1)	Eye and face protection shall be provided.	x			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.	,		х	
1926.350 (a)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.			x	

Standard	Title	In Compliance	Out of Compliance	N/A	Corrective Action Taken and Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.			х	
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			x	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a) (2)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	•
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer of the tool is double insulated.			x	
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x -	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a) (3)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

Comments:

CVE line crew was on site to prepare for new power line pole installation. Set new pole in the ground and worked on lines to be ready for scheduled 11-13 am outage.

Newman continued backfill and compaction in zone 2.

Neil Love off after surgery yesterday.





3RD WEST SUBSTATION REMEDIATION PROJECT

HEALTH SAFETY MANAGER (HSM)

		DAILY CHECKLIST
DA	TE:	11/11/11
	<u>General</u>	
	<u> </u>	Work area Health and Safety Inspection
	NA	Review and if necessary update Activity Hazard Analyses (AHA) based on planned site
	NA	activities for the day Safety Planning or "Tailgate" mandatory meeting for all employees and contractors prior to commencement of any site work. Instruction, review hazards, health & safety issues and any modifications to the CSHASP
	NA	Site hazard and safety instruction for all first time employees, contractors or visitors
	NA	Complete Employee Meeting Record Form B (where applicable
	NADocun	nent required Respirator Training completion with Form H
Ø		Record times and numbers of dump trucks and trailers as they leave the site with contaminated material.
NA		m return of waste material manifest documents for each load with site manager. lete all CSHASP Forms (for applicable activities planned for that day)
	NA .	Illness/Injury Report Form A
	NA	Site-Specific Training Record Form C
	NA	Hot Work Permit Form D
	NA	Trench/Evacuation Permit Form E
	NA	Combined Space Entry Permit From F
		Exclusion zone operations are practiced as instructed.
		Decontamination unit is working properly.
	✓ .	Workers are using decontamination unit as instructed.
		Workers use personal protective equipment properly.
	Ø	Set air samples at cardinal compass points around exclusion zone. Check
		throughout the day to ensure proper operation.
	Ø	Observe control measures for dust and fugitive materials i.e. watering excavation sites and track out prevention.
	\square	Review sign-in/sign-out log throughout and at the end of the workday.
	Ø	Secure the site at the end of the workday
	<u>Sampling</u>	
NA		Soil Confirmation sampling for any newly excavated areas
☑		Stationary Air Monitoring during contaminated soil removal around the perimeter of the exclusions zone
	NA	Personal Breathing Zone Monitoring on personnel conducting contaminated dust and soil removal
	NA ·	Digitally photograph each sample location and at any place field sampling personnel





Ø	Electronically file photo files into the on-site database
Ø	Complete Field Documentation
	Field Sample Data Sheets (FSDS)
abla	Logbook
NA	On-site computer database
abla	Label each sample media with a unique number
abla	Seal sample(s) in zip lock plastic bags
Ø	Complete and include Chain of Custody (COC) Form required for shipping of samples to appropriate laboratory
Ø	Package samples for transport IAW SOP 2-1, Packaging and Shipping of Environmental Samples
NA	Review and disseminate sample results as received from the laboratories to Project
	Manager and other appropriate managers and employees
NA	Electronically file sample reports into on-site database



3rd West Substation Site Project Safety Audit

Project: 3rd West Sub Station			Date: 11/13/11					
Location:	3rd West, 1st South, SLC		Jo	b N u	ımber:			
Survey Cond	ucted By: Justin Kargis		T i	itle:				
		In Compliance	of Compliance	N/A				
		<u> </u>	Out of		Corrective Action Taken and			
Sta n dard	Title				Date			
1926.59	Hazard Communication Program, List of Chemicals, Training, MSDSs.			x				
1926.500 (b) & (d) (old standard)	Guardrails on open sided floors, floor holes and runways.			x .				
1926.404 (b)	Ground fault circuit interrupters or an assured equipment grounding conductor program in use.			х				
1926.451 (b)	The employer shall instruct each employee in the recognition and avoidance of unsafe conditions.			х				
1926.451 (d)	Tubular welded scaffolds shall be properly braced so that they are plumb, square and rigid; legs on plumb, adjustable, mud sills, etc. to support the maximum load; guardrails and toeboards shall be installed.			х				
	Head protection, where there is a possible	v						

danger of head injury.

1926.100 (a)

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Tit le				Date
1926.652 (a) (1)	Excavation protective systems; examination by competent person when less than 5 feet in depth.			x	
1926.20 (b) (2)	Employer responsibility to initiate and maintain safety and health programs.	x			
1926.20 (b)	Employer responsibility to provide for frequent and regular inspections by designated competent persons.			x	,
1926.451 (e)	Manually propelled scaffolds shall have tight planking for the full width, platforms secured, ladder or stairway provided, suitable footing, stand plumbs, wheels locked, guardrails and toeboards.			x	
1926.1052 (c) (1)	Stair rail and handrail along each unprotected edge.			x	
1926.25 (a)	D ebris, scrap lumber with protruding nails, not cleared for work areas, stairs and around structures.			x	
1926.50	First aid shall be available in the absence of an infirmary, or other that is reasonably accessible; first aid supplies shall be accessible and telephone numbers posted.			x	
1926.451 (a) (13)	Scaffolding safe access not provided by ladder or equivalent.		l	x	
1926.651 (k) (1)	Excavations, protective systems, inspected daily by a competent person and as needed.			х	
1926.403 (b)	Employer shall ensure electrical equipment is free from recognized hazards, is suitable, used in accordance with the listing, labeling or certification.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title			₽	Date
1926.451 (a)	Scaffolding shall have guardrails and toeboards when more than 10 feet high and when less than 45 inches of work space.			х	,
1926.405 (g) (2)	Flexible cords shall be used without splice or tap; strain relief shall be provided.		_	x	
1926.405 (b)	Electrical boxes, fittings shall have covers, faceplates or canopy and holes shall be smooth where cords pass through; and unused openings in cabinets/boxes shall be closed.	x			
1926.701 (b)	Reinforcing steel onto which employees could fall shall be guarded.			x	
1926.1053 (b) (1)	Portable ladder side rails extend at least 3 feet or be secured at top.			х	
1926.651 (j) (2)	Excavations shall have materials or equipment placed at least 2 feet from the edge.			x	
1926.651 (c) (2)	Excavations shall have a safe means of egress such as ladders, ramps, etc.			x	
1926.150 (c). (1)	Portable fire fighting equipment shall be provided and extinguishers shall be inspected periodically.			х	
1926.102 (a) (1)	Eye and face protection shall be provided.	х			
1926.300 (b) (2)	Guards for power tools shall be used and moving parts of equipment shall be guarded.			x	
1926.350 (a) (9)	Oxygen cylinders in storage shall be separated from fuel gas cylinders by at least 20 feet or a ½ fire resistance barrier.		,	x .	

.

		In Compliance	Out of Compliance	N/A	Lorrective Action Taken and
Standard	Title Title				Date
1926.405 (a) (2) (ii) (e) & (f)	Temporary lights shall be protected from breakage, not suspended by their cords and extension cord.			Х	
1926.405 (a) (2) (ii) (j)	Extension cords used with portable electric tools shall be of three wire type and designed for hard or extra hard usage.	·		x	
1926.105 (a)	Workplaces more than 25 feet above the ground or water shall have safety nets when ladder, safety line/belts, temporary floors, scaffolds, catch platform are not practical.			х	
1926.1051 (a)	Stairway or ladder shall be provided at all access points where there is a break in elevation of 19 inches or more.			x	
1926.451 (a)	Scaffolding footing or anchorage shall be sound, rigid and capable of carrying the maximum intended load.			x	
1926.500 (c) (1) (old standard)	Wall opening shall be guarded.			x	
1926.404 (f)	Electrical equipment connected by cord and plug shall be grounded except if there is an isolating transformer of the tool is double insulated.			x	
1926.556 (b)	When working from an aerial lift, a full body harness and lanyard attached to the boom or basket.			x	
1926.501 (b) (1) (new standard)	Guardrails, safety nets or personal fall arrest system shall be used at 6 feet or more.			x	

		In Compliance	Out of Compliance	N/A	Corrective Action Taken and
Standard	Title				Date
1926.451 (a) (14)	Scaffold planking shall extend over their end support not less than 6 inches and not more than 12 inches.			x	
1926.602 (a) (9)	Bi-directional earth moving equipment shall have audible alarms.	x			
1926.451 (a)	Scaffolding shall be erected, moved, dismantled or altered under the supervision of a competent person.			x	
1926.550 (b) (2)	Cranes, crawler, truck or locomotive, shall meet the design, testing, maintenance, and operation per ANSI B30.5_1968. The most recent certification shall be on file until a new one is prepared.			x	

Comments:

CVE line crew arrived on site around 11:30 pm 11-12. Anticipated to work until around 4-4:30 am to set up new power pole in yard for service line.

<u>R&R</u> set monitoring pumps on 4 corners of yard around 00:15-00:20. Pump set on the N.E. corner was missing when pumps and samples were collected so only 3 samples were logged.



РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R & REnvironmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	8
DRAWN BY: JMK	DATE 11/03/2011	FILE:	

SITE PHOTOGRAPHS





РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

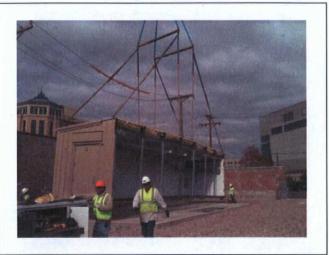
R & REnvironmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR
DRAWN BY: JMK	DATE 11/07/2011	FILE:

SITE PHOTOGRAPHS

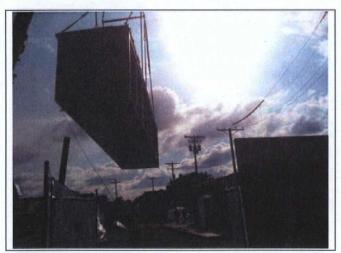




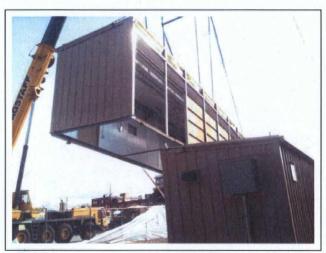
РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

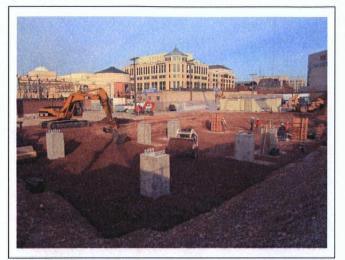
R & REnvironmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 11/07/2011	FILE:	

SITE PHOTOGRAPHS

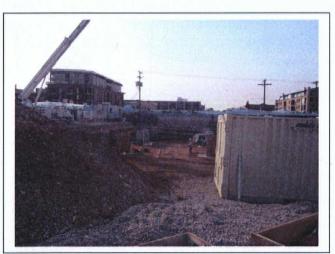




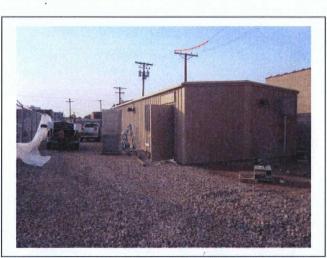
РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R&R Environmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:	SCALE:	REVIEWED BY: DCR	
DRAWN BY: JRWC	DATE: 11/8/2011	FILE:	

SITE PHOTOGRAPHS





РНОТО 1



РНОТО 2



РНОТО 3

R & REnvironmental, Inc.
47 West 9000 South, Suite #2, Sandy, Utah 84070
(801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

REVIEWED BY: DESIGNED BY: SCALE: DCR DRAWN BY: DATE FILE: **JMK** 11/09/2011

SITE PHOTOGRAPHS







PHOTO 1 PHOTO 2

R & REnvironmental, Inc.

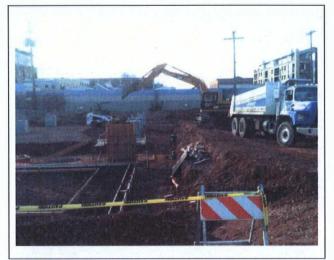
47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY: SCALE:		REVIEWED BY: DCR	
DRAWN BY: JMK	DATE 11/10/2011	FILE:	

SITE PHOTOGRAPHS

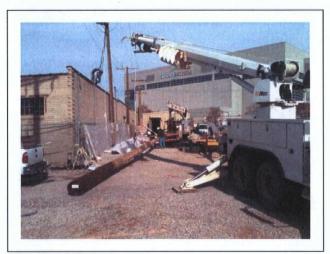




РНОТО 1



РНОТО 2



РНОТО 3



РНОТО 4

R & REnvironmental, Inc.

47 West 9000 South, Suite #2, Sandy, Utah 84070 (801) 352-2380 • Fax: (801) 352-2381

PROJECT NO:

DESIGNED BY:

SCALE:

REVIEWED BY:
DCR

DRAWN BY:
JMK

DATE:
11-11-11

FILE:

SITE PHOTOGRAPHS



PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third We	est Sub - Rebuild	DATE: Monday, November 7, 2011									
PO & Work Order NO. :	3000078	3050 / 10035803	MAIN CONTR	RACTOR:	Cache Valle	y Elec tri c						
Crew Start Time:	6:40	Crew Stop Time:	17:30		Tot Hrs mns:	10:50						
FCR Start Time:	6:00	FCR Stop Time:	17:45		Tot Hrs mns: 11:45							
Use military time format 00:0												
WEATHER CONDITIONS:		Partly Clou	ıd y to Sunn y, 45	degrees								
DESCRIPTION: (work nor	formed general	comments, instructions to	contractor # of	f crow mai	mhere oneite	`						
		om the six stems and the two m										
' ' '		ery good job of cleanup and ho	• •	•	•							
		ne floor for the transformer pad										
		nd the six south spread footings										
	-	ewman still had a little bit of wo										
		ndustries, Trachte's erection su										
Crane. They removed the ship	ping frames from the	e two building sections and the	west section was s	et by about	: 11:00. The ea:	st section						
		pretty well, after some encoura	-			- 1						
		building was that the second se										
		de enough that Wallace had to										
		ether about 3:30, installed the r										
		g has been conducting compac		ckfilling per	tormed by N ewi	man. CVH						
$= 6$, Newman $= 3$, $\mathbf{R} \propto \mathbf{R} = 1$,	vviiding = 1, P S1 = 1	, Wallace Ind. = 4, Wagstaff = 2	۷.			•						
IF WORKING IN ENERGIZ	ED CLIDCTATION											
Dispatcher login, name and time												
Dispatcher logout, name and ti												
DISCREPANCIES:	ine. Jiili Bowillai	11 1745	IMMEDIATE CO	PPECTIV	E ACTION TA	KEN:						
	e forms of the mats ar	nd the stems of the spread footings										
		d not covered/patched. I spoke with		o opcomoc ar	id affi amaiding aff	orrian						
Steve Davis in Portland and he is o												
remedy. He will also address the i												
bottom of the xfmr floor and the tor on too of the mat fdn.	or the spread footing	mat, where the xtmr pad overlaps										
Some backfill material brought in b	v Newman to fill the vo	oid between the bidg fdn and the	R&R has obtained fo	ur additional	samples of this m	aterial that						
cable trench was sampled and four	nd to contain suspecte	d contaminant material. R&R has	will be analyzed in D		-							
obtained four additional samples o		be analyzed in Denver tomorrow	the Wednesday mee	ting.								
and results are anticipate by the W			L									
DELAYS OR LOST TIME E	NCOUNTERED.	 			_							
					•							
						İ						
	•					ļ						
FOLUDATIVE CONTRACTOR	1: - 1 :-11 \											
EQUIPMENT (working, de			- wages - adable was		tura tradition w							
Portable toilet (2), forklift, 2 dumps		ex , exclusion zone conex (2), water apactor, CVE tool trailer, crew truck	- ·		Jule, Hackinge W	pavement						
broaker, mini-ex, boboat, power we	ionor, major truck, com	ipastor, over tool tiglior, order truck	, 230 moo, durip duoi	130								
·						[
	•											
						<u> </u>						
OSHA Recordable Safety	Incidents:	F	Rep ort ed t	oy:	Time:							



Russ Johnson

PACIFICORP OPERATIONS - Field Construction Representative Daily Log PROJECT NAME: Third West Sub - Rebuild Tuesday, November 8, 2011 DATE: PO & Work Order NO. : 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric Crew Start Time: 6:45 Crew Stop Time: 17:25 Tot Hrs mns: 10:40 FCR Start Time: 6:50 FCR Stop Time: 17:35 **Tot Hrs mns:** 10:45 Use military time format 00:00 **WEATHER CONDITIONS:** Partly Cloudy - 42 degrees DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set up four monitors. CVE continued setting up the forms and anchor bolts for the final two "G" foundations and started laying out the east transformer floor. CVE applied an asphaltic mastic to the concrete where the pencil rod has been broken off and where the "exposed" pencil rod will be below grade. CVE installed insulated blankets over the area where the transformer floor will be poured. Newman is backfilling the south half of the excavation and Wilding is providing compaction testing as necessary. PSi (Tyler) came by and gave final approval of the proofing for the east transformer area. Wallace Enterprises completed the assembly of the Trachte building with the exception of five small items which will be remedied when Wallace returns in approximately 10 days to install the wallpack that was damaged during transit. CVE = 6, Newman = 3, R&R = 1, Wilding = 1, PSI = 1, Wallace ind. = 4, IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Ken Barto 0705 Dispatcher logout, name and time: XXXX **DISCREPANCIES:** IMMEDIATE CORRECTIVE ACTION TAKEN: The west wallpak (light fixture) for the building arrived damaged and Wallace has ordered a Deficiencies are noted on the Trachte form replacement. Tim will return and install after it arrives. There are four other dificiencies or the Trachte report I signed, nothing big, that will be remedied when Tim Wallace returns to hang the replacement wallpack RMP Eng authorized the use of pencil rod in foundations with the understanding that all Drawings have been redlined below grade exposed rod be painted with an asphaltic mastic, and that all above grad exposed rod be ground down to a depth of .25" and grouted. RMP Eng also approved a thickened section of the xfmr floor, with additional rebar, where Drawings have been redlined the xfmr floor overlays the spread footing pad **DELAYS OR LOST TIME ENCOUNTERED:**

EQUIPMENT (working, delivered, idle):

Portable toilet (2), forklift, 2 dumpsters, office trailer, conex, exclusion zone conex (2), water wagon, portable wash-down structure, trackhoe w/pavement breaker, mini-ex, bobcat, power washer, water truck, compactor, CVE tool trailer, crew truck, backhoe, dump truck.

OSHA Recordable Safety Incidents: Reported by: Time:



Russ Johnson

PACIFICORP OPERATIONS - Field Construction Representative Daily Log Third West Sub - Rebuild PROJECT NAME: DATE: Wednesday, November 9, 2011 PO & Work Order NO.: 3000078050 / 10035803 MAIN CONTRACTOR: Cache Valley Electric 7:00 Crew Start Time: Crew Stop Time: 17:20 Tot Hrs mns: 10:20 17:30 FCR Start Time: 6:20 FCR Stop Time: 11:10 Tot Hrs mns: Use military time format 00:00 **WEATHER CONDITIONS:** Sunny - 45 degrees DESCRIPTION: (work performed, general comments, instructions to contractor, # of crew members onsite.) R&R set up four monitors. CVE placed some plywood over two openings in the control building floor, after not being able to find any fabricated plates for the openings. CVE crew continues to place forms and rebar for the transformer floor. Newman continues to place backfill in the south area around the spread footings and has excavated an area for the placement of the C and D foundations. Took delive today of two panels, one RTU and one miscellaneous panel, plus a box of "stuff". Brian and Robert (RMP Enviro) came by this PM and discussed the issue with the mutant fill material. R&R has still not received their test results to indicate if the specie of material from this backfill is the same as the Libby material here on site. Supposedly tomorrow. CVE = 6. Newman = 3, R&R = 1, Wilding = 1. IF WORKING IN ENERGIZED SUBSTATION: Dispatcher login, name and time: Ken Barto 0625 Kim Batt 1730 Dispatcher logout, name and time: DISCREPANCIES: IMMEDIATE CORRECTIVE ACTION TAKEN: DELAYS OR LOST TIME ENCOUNTERED: EQUIPMENT (working, delivered, idle):

Portable toilet (2), forklift, 2 dumpsters, office trailer, conex, exclusion zone conex (2), portable wash-down structure, trachoe (2), mini-ex, bobcat, power

ROCKY MOUNTAIN

OSHA Recordable Safety Incidents:

washer, water truck, compactor, CVE tool trailer, crew truck, backhoe, dump truck.

Russ Johnson

Field Construction Representative

Reported by:

Time:

PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:	Third West	Sub - Rebuild	DATE : Thursd	Thursday, November 10, 20					
PO & Work Order NO. :	300007805	0 / 10035803	MAIN CONTRACTOR	: Cache Valle	y Electric				
Crew Start Time:	7:00	Crew Stop Time:	16:30	Tot Hrs mns:	9:30				
FCR Start Time:	6:50	FCR Stop Time:	17:30	Tot Hrs mns:	10:40				
Use military time format 00:00		-		• • • • • • • • • • • • • • • • • • • •					
•									
WEATHER CONDITIONS:	,	Sun	ny - 47 d egrees	- 					
DESCRIPTION: (work perfor									
R&R set up four monitors. PSI casouth "C" and "D" foundations will and placing rebar/anchor bolts for for trucks to manuever around in topen excavation. Newman cover removed from the site as soon as lumber and visqueen. Dave (R&F discussing the removal and the popoles off at ground level and we was Bezzant to make sure that this was trip or a tire hazard. CVE = 5, N	be placed. CVE conthe C and D foundathe soon to be exclused the suspect mate we turn that area into the control of the control	ntinues to place rebar for the tions. Newman staged the posion zone and continues to be rial on the back side of the coto an exclusion zone again. Ce discussed the removal of the trained" and "suited" personned with the other spoils when the remative and he Indicates that	transformer floor and is wor ortable truck wash behind th ockfill around the spread foo ntrol building with visqueen CVE covered the excavation e two old poles which will ta el to perform the removal, I se we turn this area into an exc	king on setting for the decon conex to things in the south and the material for the new term ke place on Sun suggested that wolusion zone. I c	orms to grad o make room n half of the will be ninal pole with day. After we just cut the ontacted Alan				
IF WORKING IN ENERGIZED									
Dispatcher login, name and time:	Ken Barto 0625								
Dispatcher logout, name and time	Gus Montanez								
DISCREPANCIES:			MMEDIATE CORRECTIV	VE ACTION TA	KEN:				
									
					1				
				•					
DELAYS OF LOST TIME EN	COUNTEDED	<u> </u>							
Newman had some issues with the loa		ge site and also some difficulties	getting a truck available for hal	lling					
Newmait had some issues with the loc	auei at theil ABC Stora	ge site and also some difficulties	getting a truck available for had	illig.	1				
					1				
[ĺ				
FOURTH Averting deliv	arad idla).	-							
EQUIPMENT (working, deliver CVE: Portable toilet (2), forklift, 2 dun		oney exclusion zone coney (2)	tool trailer crew truck boom tru	Ick Newman r	ortable wash				
down structure, trachoe (2), mini-ex,				ion. Newlitall.	IOI (abic Wasili				
00114 5		· · <u> </u>							
OSHA Recordable Safety Inc	idents:		Reported	by:	Time:				
L		<u></u>							



PACIFICORP OPERATIONS - Field Construction Representative Daily Log

PROJECT NAME:		hi rd W e st S ub	- Rebuild	DATE: Friday, November 11, 2011									
PO & Work Order NO. :	3	3000078050 / 10	0035803	MAIN CONT	RACTOR :	Cache Vall	ey Electric						
Crew Start Time:	7:00		Crew Stop Time:	16:4	5	Tot Hrs mns:	9:45						
FCR Start Time:	6:40		FCR Stop Time:	17:0:	5	Tot Hrs mns:	10:25						
Use military time format 00			,		-	•							
VEATHER CONDITIONS: Sunny, hazy - 50 degrees													
DESCRIPTION: (work p													
R&R set up four monitors. Of foundations, and started form excavation. CVE line crew a conductors on the service poterminating the UG cables for 4, CVE line crew = 5, Newmonth of the UG cables for the UG cables	nin g an d tying irrived with eq ble for the prin ir the feed to l	rebar for the struuipment and mat uipment and mat uting company, se UTA. Next concre	acture F foundation, Nerials for the d istribution the new termination to be pour is scheduled for	ewman continues n line work. The on pole at the cor	s to backfill ir work today v ner of the bu	the south part vill include spre ilding, and pulli	of the ading the						
IF WORKING IN ENERG	ZED SUBS	TATION:											
Dispatcher login, name and t	time: Ker	n Barto 0640	p		•								
Dispatcher logout, name and	time: Bar	rry Nielson 1705											
DISCREPANCIES:	 			IMMEDIATE C	ORRECTIV	E ACTION TA	AKEN:						
		•											
		•	· · · · · · · · · · · · · · · · · · ·			····							
				-									
DELAYS OR LOST TIME	ENCOUNT	EPED:											
EQUIPMENT (working, o						:							
CVE fab crew: Portable toilet (2), forklift, 2 dumpsters, office trailer, conex, exclusion zone conex (2), tool trailer, crew truck, boom truck. CVE line crew: Crew truck, bucket truck, line truck, material truck, pole trailer Newman: portable wash-down structure, trachoe (2), mini-ex, bobcat, power washer, water truck, compactor, backhoe.													
OSHA Recordable Safet	v Incidents				Reported	b v :	Time:						
	,	-			1.2, 3.334								



Russ Johnson



November 9, 2011

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 223858-1 None Given

Project Description:

3rd West Sub Station -

RMP

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer.

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 223858-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 223858-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description:

3rd West Sub Station - RMP

Date Samples Received:

November 8, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

November 8, 2011

Client ID Number	Lab ID Nur	mber	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W110711-E	EM	8207 3 7	0.0770	1079	ND	0.0046	BAS	BAS
3W110711-S	EM :	8207 3 8	0.0770	1079	ND	0.0046	B AS	BAS
3W110711-N	EM :	8207 3 9	0.0770	1094	1	0.0046	0.0046	13 .0
3W110711-W	EM 8	820740	0.0770	1094	ND	0.0046	B AS	BAS

NA = Not Analyzed

ND = None Detected

BAS = Below Analytical Sensitivity

Average Grid Opening in mm² = 0.011

Filter Material = Mixed Cellulose Ester

Filter Diameter = 25 mm

Effective Filter Area = 385 sq mm

Digitally signed by Gina Vettreino Date, 2011 11.09 07:57:12-0700

DATA QA

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE II. SUMMARY OF ANALYTICAL DATA

RES Job Number:

RES 223858-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description: 3

3rd West Sub Station - RMP

Date Samples Received:

November 8, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

November 8, 2011

Client ID Number	Lab ID N	umber	Asbestos Mineral	Asl	> Asbestos Structure Types*				**Excluded Structures	Asbestos Structures for
			•	Fibers	Bundles	Clusters	Matrices	_		Concentration
3W110711-E	. EM	820737	ND	0	0	0	0	0	0	0
3W110711-S	EM	820738	ND	0	0	0	0	0	0	0
3W110711-N	EM	82 07 3 9	Chrysotile	1	0	0	0	0	0	· 1
3W110711-W	EM	820740	ND	. 0	0	0	0	0	0	0

^{*}See Analytical Procedure for definitions

^{**}C = Excluded from total due to lack of confirmation

^{**}L = Excluded from total for length less than 0.5 micron (AHERA only)

^{**}A = Excluded from total due to incorrect aspect ratio

ND = None Detected

Due Date: Due Time:

REILAB Reservoirs Environmental, Inc... 5801 Logan St. Dmiver, CO 50216 · Pti: 303 944-1966 · Fex 303-477-4275 · Tod Frae: 386 RESI-ENV

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. Page	 of 1

	Pager: 303-60								,.					•	·^-		T	EAR	> a # 4 *	TIO-1-	., -90		- - '	
Company V C () C	INVOICE TO: (IF	וט -	rek		<u></u>	Ice	ntert-	75.		ח	-7				LINUS	AU	IIN	Conta		TION:				
LAIC STAN ON MENTAL	Address:				_		Contect Davi Roskelley Phone:								L	Phone:								
47 W 40000						I	Fax:								Fac									
sandy ut 84070	ļ						Call/pagar: 801 541-1035								Cell/pager:									
Project Number and/or P.O. #:	Project Number and/or P.O. #:				Final Data Daliverabla Email Addrass:																			
Project Description/Location: 32 West Substailion - KNIV							<u>d</u>	وداما	L 8	2	re:	wir	0.4	m										
ASBESTOS LABORATORY HOURS: Weekdays: 7amt -Tpm		Τ		1.		REQL	EST	ΓED	AN	ALY	/SIS				I		VAL	ID N	ATE	RIX CO	DDES_		AB N	OTES:
PLM / PCM / TEM RUSH (Same Day) PRIORITY (Next Day)STANDARD										li				<u> </u>		Air =		\dashv		lulk = B	↓_		<u> </u>
(Rush PCM = 2fr, TEM = 6hr.)	·	4	1	- {	1	11	l			1.			11	1	<u> </u>		ust :				aint = P	14	20	
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - Spin		4		İ									li		<u> </u>		ioil =				ipe = W	╀.	لستشر	1131
Metal(s) / Dust RUSH 24 hr 3-5 Day	"*Prior notification is		Quant,					11		_		1			_		_	SW			= Food	+)
RCRA 8 / Metals & Welding Fume Scan / TCLP RUSH 5 day10 day	required for RUSH	Ę	8			Scan			-]	읋				5 0	Dri	nking	y Wa				Water = WW	┼	\simeq	
	turnarounds.**	Point Count	¥ 8	E		SS		H		Quantification	!		١		 _	ACT	14 E1		0 = 0		media only**	+-		
Organics24 hr 5 day5 Day MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pn		<u> </u>	ISO,	ğ		Metals			ı	Š	,	<u>ş</u> , <u>ş</u>	اءا	ER NOTES	-	ASI		702 3	phion	SO WIDE	Illedia Only	+		
E.coil 0157:H7, Coliforms, S.aureus24 hr2 Day		호	2, 1	a !			Ì			8	Ş,	Quantifical	Quantification	<u> </u>								—		
Salmonella, Listeria, E.coli, APC, Y & M 48 Hr3-5 Day		Į	7402,	SHA OSHA	اوا	Fume,		П	Ĺ	7	Quentification	Quantifica	(월)				ĺ							
	48 Hr3 Day 5 Day	Long			Qe	∫ ∰			÷l	끝	8	ত চিচ	Fall S	S			١.					-		
"Turnaround times establish a laboratory priority, subject to laboratory volume and a			3	7400B,	Respirable	yte(s) Welding F	E	 		Cg		١-	اةً ا	3 3	۱.,							<u> </u>		
apply for afterhours, waskends and holidays."*	e not guaranteau. Adoloonal 1985	Short report,	돭첉	A A		- Analy TCLP,	- S	ella	± 57.	Plate	+	‡ ‡ igi igi	¥ ,	. IN S	Volum		e e	ည			1			
Special Instructions:		٠,	M - AH	PCM - 7400A, 7400B,	DUST - To	METALS - RCRA 8, T	ORGANICS - METH	Salmonella:	E.coli 0157:H7 Listeria: +/-	Aerobic Plate Count:	⊞ ::	S.aureus:	Y & M:	SAMPLER'S INITIALS OR OTHER NOTES	Sample V	(L) / Area	Matrix Code	Containers		ate lected	Time Collected	EM N		91 (Labora Only)
Client sample ID number (Sample ID's must be unique): <u></u>	_ ₽	E G	8 8	3	≅ 5.	6	<u> </u>	M	CRC	BIO	LOGY	,	& A	S	<u>ਦ</u>	ž	#	$\overline{}$	/dd/yy	hh/mm e/p	<u> </u>	_::::	<u> </u>
1/3W1107U-E			X	1			L	Ш						1	_11.0	79	A		n(11/10		ੁ €.	255-	137
2 3w 1107U - S											•	I			1,0	79	\prod							30
3 13W 1W7U - N			1 }	-	1	}	1			1		1			-11.6)14							ĺ	39
8 3w 11074 - W			t							1.1		1	\Box			94	L		. ,	7			F	39 40
5		1		<u> </u>	1		<u> </u>	\Box	+			†	H	 	1	~				<u></u>	<u> </u>	†	<u></u>	
6				i.						1		1		T.						:				
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10			10.70				_	₩	\downarrow			1		. . `			٠٠					l		
Number of samples received: (Addition NOTE: REI will analyze incoming samples based-uper information received and will not be re analysis as indicated on this Chain of Custody shall constitute an analytical senices agreeme		calcula	tions re	esulting	from ti	he inacc										lalive	agre	es ihai	t subni	ission ol	tha following sa	imples loi	request	ted
	, Color						7	\overline{T}	_	-					<u></u>									
Relinquished By: Laboratory Use Only Received By: Date	e/Time: 1/-5/16	<u> </u>	8	4		na: (7		<u>_</u>	<u> </u>						-	•	Conc F°) _	dition:	_		Sealed /es / No		ntact gs/No
	GIV Time 6: 200 Initi			ontac	# #	Janie			ne i	Ema	ii Fa	ax,			Dat	θ (Te	ril	-	Tim	e 756	in	itials	2/2
Contact Priorie Email Fax Date		ials		ontac				Pho	ne	Ema	ii Fa	x			Dat	8				Tim	8	In	itials	7
In	a cate 170					32																		

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

A = Amosite	F = Fiber
An = Anthophyllite	B = Bundle
C = Chrysotile	C = Cluster
Cr = Crocidolite	M = Matrix
T = Tremolite	

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron

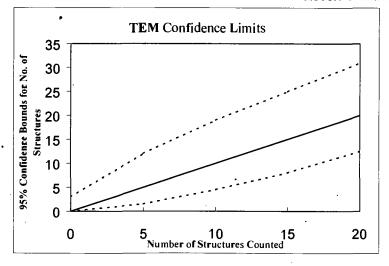
1.80 length units = 0.5 micron

18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bernard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
Instrument	JEOL 100 CX N 6
Vottage (KV)	100 KV
Maanification	(20KX) 10KX
Grid opening area (mm2)	0.011
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area · (mm2)	N/A
QA Type	NIA

Client :	R+R
Sample Type (A=Alr, D=Dust):	A
Air volume (L) or dust area (cm2)	1079
Date received by lab	11/8/11
Lab Job Number:	223858
Lab Sample Number:	82.0737

Lab Sample Number:	820+3+
F-Factor Calculation (Indirect Pr	eps Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	<u>:</u>
Volume Applied to secondary filter	

Analyzed by	- UL
Analysis date	11/8/11
Method (D=Direct, l=Indirect, lA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Att
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	ructures	Dimensions		Dimensions Identification		Mineral Class			1 = yes, blank = no		
		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	95-4	M			L		PrepA	90/ . Was	4	~5]	debris			
	75-4	NO					Prep B	NA	`					
	25-4	NO						Jen /b	in	11/	8/11		·	
	S	29		·				()			1			•
B	F4-3	8					•							
	E4-3	W		!					, , , ,	,				
	C4-3	NO								, –				
		-												
					1									

7 Lin Asbestos Suacture Count						
Client :	R+R					
Sample Type (A=Air, D=Dust):	A					
Air yolume (L) or dust area (cm2)	1079					
Date received by lab	11/8/11					
Lab Job Number:	223858					
Lab Sample Number:	820738					

Analyzed by	-CR
Analysis date	11/8/11
Method (D=DirecL l=Indtrect, IA≖Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation	(Indirect	Drane	Onk/\
r-racioi Calculation	fillan ecf	Lighs	Offig).

spa Only).
1

Grid	Grid Opening	Structure	No. of Structures Primary Total		Dimensions		Identification	Mineral Class				1 = yes, blank = no		
		Туре			Length Width			Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	L4-3	NV									· 			
	K4-3	M				me	p A 901	. intact	1~5	7. کو	bris			
	H4-3	M					p But		C					·.
	94-3	20						Jon h	en 11/	8/11				
B	Ku -1	W												
	H4-1	M												
	94-1	M												
·											·			

Laboratory name:

Magnification
Grid opening area

Scale: IL =

Primary filter area

Secondary Filter Area

Scate: 1D =

Instrument
Voltage (KV)

(mm2)

(mm2)

(mm2)

QA Type

JEOL 100 CX N (6

100 KV 20KX) 10KX

0.011

0.28 um

0.056 um

385

NIA

NIA

Laboratory name:	REI
Instrument	JEOL 100 CX N 9
Voltaae (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.011
Scale: 1L ≃	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	N/A
QA Type	NIA

Client :	R+R
Sample Type (A=Air, 0=Dust):	A
Air volume (L) or dust area (cm2)	1094
Date recsived by lab	11/8/11
Lab Job Number:	223858
Lab Sample Number:	820739

F-Factor Calculation (Indirect Pr	reps Only):
Fraction of primary filter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (mi)	

Analyzed by	- UK
Analysis date	11/8/11
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Att
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of St	uctures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
		Туре	Primary	Total	Length	Width		Amohibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	43-1	M					Prox	A 90%.	45	1, de	bri's			
	F3-1	ND					frag B	> A			·			
	23-1	NO						Ven	In	n 11/	8/11			
	(3-1	2												
B	K-3-1	M												
	H3-1	12		1	2.5	1	OP		_		#			
	93-1	NO												
											·			
					,						·			

R+R
A
1094
11/8/11
223858
820740

Analyzed by	M
Analysis date	11/8/11
Method (D=Direct, t=tndisect, IA=Indirect, ashed)	D
Counting rutes (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation	(Indirect	Preps	Only):
Frection of primery filter		\Box	

Frection of primery filter used	
Total Resuspension Volume (mt)	
Volume Applied to secondary litter (ml)	

Grid	Grid Opening	Structure	No. of St	ructures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
Ond	Ond Opening	Туре	Primary	Total	Length	Width		Amphibole		NAM	Sketch/Comments	Sketch	Photo	EDS
A	96-4	M												
	F6-4	M					Prep A	907. Int	are 5	-7/	debris			
	26-4	MO					Pner	Brs.		`				
	Cle-4	NO						Jen /	her	11/8	/4			·
B	F4-6	M												
	24-6	M			<u> </u>	<u> </u>						- (· ·	
	(4-6	M										,		
											·			

Laboratory name:

Magnification Grid opening area

Scale: 1D = Primary fitter area

(mm2) Secondary Filter Area

Instrument

Voltage (KV)

(mm2) Scale: 1L=

(mm2)

QA Type

REI JEOL 100 CX N 6

100 KV

20KX 10KX

0.011

0.28 um

0.056 um

385 NA

NIA

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, $mm^2 = \# GO \text{ counted } x \text{ Average } GO \text{ Area } (mm)$

Concentration, $s/cc = \frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{A verage GO area (mm}^2)} \times \frac{11}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



November 10, 2011

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report:

RES 223951-1

Project # / P.O. #

None Given 3rd West Sub Station -

Project Description: 3rd West Su Pacifi Corp.

David Roskelley R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 223951-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 223951-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description:

3rd West Sub Station - Pacifi Corp.

Date Samples Received:

November 9, 2011

Analysis Type:

TEM, AHERA

Turnaround:

6 Hour

Date Samples Analyzed:

November 10, 2011

Client ID Number	Lab ID No	umber	Area Analyzed	Air Volume	Number of Asbestos Structures	Analytical Sensitivity	Asbestos Concentration	Filter Loading
				Sampled	Detected			
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W-110811-N	EM	822336	0.0770	1168	ND	0.0043	BAS	BAS
3W-110811-S	. EM	822337	0.0770	1164	ND	0.0043	BAS	BAS
3W-110811-E	. EM	822338	0.0770	1162	ND	0.0043	BAS	BAS
3W-110811-W	EM	82233 9	0.0770	1164	ND	0.0043	BAS	BAS
Blank	EM	822340	NA	0	NA			
Blank	· EM	822341	NA	. 0	NA			

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity

Effective Filter Area = 385 sq mm

Average Grid Opening in mm² = 0.011

ned by Elisha Elle

Due Date: | |- (Ø - 1 | Due Time: ____ 91 Ø ~



SUBMITTED BY:	INVOICE TO: (II	F DIFFERENT)	CONTACT	INFORMATION:	-		
Company: PTP Environmental, Inc	Company:		Contact Dave Portelley	Conact:			
Address: 47 W 90003. #2	Address:		Prone: 901 541 (D35 /	Ptwne:	<u> </u>		
Address: 47 W. 90009. #2 Sandy III 94070			Fax	Fax:	Fax:		
- way to be			Cell/pager:	Cett/pager:			
Project Number end/or P.O. #:			Final Data Octivarable Email Address:				
Project Description/Location: 33 West Months Antres - Each	Cop.		DAVER REENVIRG.	COM			
ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm			MALYSIB VALIÐ MAT	RIX CODES	LAB NOTES:		
PLM / PCM (ZEM) RUSH (Same Day) PRIORITY (Next Day)	ay)STANDARD	Quent	Air = A Dust = D	Bulk = B			
(Rush PCM = 2hr, TEM = 6hr.)		S Quent	Dust = D	Paint = P			
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm		Point Count SO, +/-, Qu at Preps	Soil = S	Wipe = W			
Metal(s) / Dust RUSH 24 hr 3-5 Day		ISO, Poli		ater = DW			
DCDA n (Matala & Malding	**Prior notification is	【ゼー . 歩 ー ー)	Waste War Other	ter = WW			
RCRA 8 / Metals & Welding RUSH 5 day10 day	required for RUSH	ng report, 7402, 1 ISO-Indire OSHA	2! Other	·= 0			
	turnarwunds.**			red wipe media only**			
Organics 24 hr 3 day 5 Day			18 - 1 1 3	•			
"Analysis turnsrounds are subject to laboratory eample volume and are not gu	aranteed. You will be notifited	Short report, L. AHERA, Level lant, Micro-vac 7400A, 7400E . Total, Respil S - Analyfe(s)	ORGANICS - BTEX, OTHER - Sample Volume (L) / Area Matrix Code				
if delays are expected. Additional fees apply for afterhours and holidays.	for all analysis types."		ers de ger	İ			
Special Institutions	· ·	8 E na 4 5 8	Weldin Mics.	Date Time			
Special Instructions:		PLM - Shor Semi-quent, PCM - 7400 DUST - Tot METALS -	ORGANICS - OTHER - OTHER - OTHER - OTHER - (L) / Area Matrix Code	Rected Collected	EM Number (Laboratory		
Client sample ID number (Sample ID's must be unique	e)	PLM Semi- PCM DUST	<u> </u>	nAid/yy hhimm o/p	Use Only)		
13W-110811-N		AMERIA	1,1682 110	2/10	@2233c		
			1.164;		r 32		
3			1.11-2		38		
		4	1,1647	b			
5 Bank			7.0		1 10		
6 mil					41		
7							
10							
11							
12							
13							
	ional samples shall be listed or						
NOTE: REI will analyze incoming samples based upon information received and will not	be responable for eirors or omissiaru i	n catculatiom resulting from the in	scauracy of oliginal data. By signing dient/compa	ny representative agrees	nat subtilission of the		
jollowing samples for requested apalysis as indicated growns Chain of Cuelody shall	oonstitute an analytical tenrices agreer	nerit wan fayment terms of NETS	or days, takure to eomply with payment tarms may	result m a 1.5% moranly r	nwest surchaige.		
Relinquished By:	\mathcal{A}	OB / Date/Time:	1900 Sample Condition	n: On Ice Sea	led intact		
Laboratory Use Only		,	Temp. (F°)	Y/N Y/			
Received By:			nier: OKLY				
Results: Contact Dave Page Phone Email Fax Date	1)-9 Time (0:20AInit	tals Al-H Contact	Paga Phone Email Fax	Date Tim	e Initials		
Contact Page Phone Email Fax Date	Time Init	als Contact	Page Phone Email Fax	Date Tim	e Initials		
CMS8 . /4	La gran 7	1 - 11300					

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

Α	=	Amosite	F =	Fiber
An	=	Anthophyllite	B =	Bundle
C	=	Chrysotile	C =	Cluster
Cr	=	Crocidolite	M =	Matrix
T	=	Tremolite		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron

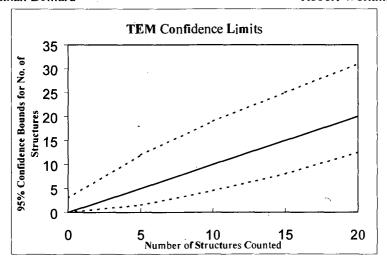
1.80 length units = 0.5 micron

18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bemard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REI
Instrument	JEOL 100 N S
Voltage (KV)	100 KV
Maanification	2010 10KX
Grid opening area (mm2)	0.011
Scate: 1L =	0.28 um
Scale: 1D=	0.056 um
Primary filter area	
(mm2) Secondary Filter Area	385
(mm2)	
QA Type	<u> </u>

RAR
A
1168
11 9/4
223951
821336

Total Resuspension Volume (ml)	

Analyzed by	313
Analysis date	Moola
Method (D=Direct, t=Indirect,	
IA=Indirect, ashed)	D
Counting rules	0.1
(ISO, AHERA, ASTM)	AH.
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	rid Grid Opening Structure		No. of Str	nctures	Dimer	nsions	Identification	Mineral Class				1 = y	es, blank	= no
		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EOS
A	1+3-6	ND							, .					
	63-6	ND				Pm	n A	60 h.	him	f	5% Jehn	's		
	F3-6	ND				Pn	3/3	80%	nhm	F	5 % debi	Ś		
	E3-6	M	T.				·		,	1				-
B	K4-6	MD							mil	<i>u/u</i>	/4			
	146	W					3		/	7				
	646	%												
											1			
											÷			
		·												

Page	1 0	f	
rauc			

Laboratory name:	REI
Instrument	JEOL 100 N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Tyoe	

RHR
A
1164
11 9/11
773951
821337

ps Only):

Analyzed by	J13
Analysis date Method (D=Direct, I=Indirect, IA=Indirect, ashed)	i finfer
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening Structure Type		Structure No. of Stru		No. of Structures		Structures Dimensions Id		Identification Mineral Class					1 = yes, blank = no		
			Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	ED\$		
A	K5-1	W														
	45-1	W						2	1							
	65-6	(M.				WD	Ja/	~50%	int	2nt	560	le br	``			
	F5-6	W						. 1	h				_			
3	F3-1	M							Sund	11/11	D/1/					
	£3-1.	W								7	/	_				
	E3-3	8			•				T			-				
								·								
				`												

Rev 3-2009

Page	

l charatery name:	REI
Laboratory name:	REI
Instrument	JEOL 100 N S
Voltage (KV)	100 KV
Magnification	2010 10KX
Grid opening area (mm2)	0.011
Scale: 1L=	0.28 um
Scale: 1D =	0.056 um
Primaly filter area (mm2)	385
Secondary Filter Area (mm2)	•
QA Type	

1=:::::::::::::::::::::::::::::::::::::	
Client :	RHR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1162
Date received by lab	11 911
Lab Job Numben	273951
Lab Sample Number	821338

F-Factor Calculation (Indirect Pre	ps Only):
Fraction of primary filler used	
Total Resuspension Volume (ml)	
Volume Applied to secondary fitter (ml)	

Analyzed by	J13
Analysis date	illioln
Method (D=Direct, !=Indirect, IA=Indirect, ashed)	D)
Counting rules (ISO, AHERA, ASTM)	_AH
Grid storage location	Month Analyzed
Scooe Alignment	Date Analyzed

Grid	Grid Opening Structure No. of Structures		Dimensions Identification		Identification	Mineral Class				1 = yes, blank = no				
		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	H3-1	ND												
	63-1	ND			Pw	s A	6.0	Lux but	5	78	ebris			
	F3-1	ND			Pus	1/5	NA			,	•			
	E31	MS			• • •		4	1	,					
B	44-4	ND					18	nd 11/10/					,	
	Hely	ND					1	91 /		,	·			
	614-4	W												
								-			:			

Laboratory name:	REI
Instrument	JEOL 100 N S
Voltage (KV)	100 KV
Magnification	20KX 10KX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	RHR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1164
Date received by lab	11 9 4
Lab Job Number:	723951
Lab Sample Numben	821339

F-Factor Calculation (Indirect Pr	eps Only):
Fraction of primary filter used	
Totel Resuspension Volume (ml)	
Volume Applied to secondary filter (mt)	

Analyzed by	345 AL
Analysis date Method (t)=Direct, I=Indirect,	· Mfofu
IA=tndirect, ashed) Counting rules (ISO, AHERA, ASTM)	- D - AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Grid Opening Structur		No. of Str	nctures	Dimensions Identifica		Identification	Mineral Class				1 = yes, blank = no		
Gild	Grid Operining	Туре	Primary	Total	Length	Width	raenancarion	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	44-6	M												
	614-6	44									·			
	F46	N.D		G.	cA:	80%	vintac	.5-	7 % 0	let	ر مح			
	E4-6	M		Piec	: B:	60	into		7%	de	bres			•
B	C4-4	ND								· .				
	C4-1	S				<i>'</i>	,	/						
	B4-1	NO						b						
											,			

Analytical Procedures - AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material!

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, $s/cc = \frac{\# \text{ Asbestos Structures}}{\# \text{ GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, $s/mm^2 = \frac{\# Asbestos structures}{Area Analyzed (mm^2)}$

'GO = TEM grid opening



November 11, 2011

Laboratory Code:

RES

Subcontract Number:

NA

Laboratory Report: Project # / P.O. #

RES 224038-1 None Given

Project Description:

Rocky Mtn. Power 3rd

West Sub Station

Eldon Romney R & R Environmental 47 West 9000 South #2 Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 224038-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 224038-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description:

Rocky Mtn. Power 3rd West Sub Station

Date Samples Received:

November 10, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

November 10, 2011 - November 11, 2011

Client ID Number	Lab ID No	umber	Area Analyzed			Analytical Sensitivity	Asbestos Concentration	Filter Loading	
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)	
3W110911-E	EM	822985	0.0800	1011	ND	0.0048	BAS	BAS	
3W110911-S	EM	822986	0.0800	1011	ND	0.0048	B AS	BAS	
3W110911-N	EM	822987	0.0800	1022	ND	0.0047	BAS	BAS	
3W110911-W	EM	822988	0.1000	3 52	ND	0.0109	BAS	BAS	

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity

Effective Filter Area = 385 sq mm

Average Grid Opening in mm² = 0.010

DATA QA

Due Date:	41111
Due Time:_	Score

REILAB RESERVOITS Environmental, Inc. 8801 Logen 81. Derwer, CO 80216 • Phr. 303 984-1986 • Fax 303-477-4276 • Tol Free :886 REBI-ENV

:: <u></u>			
Page _	_1	of_	

Pager: 303-509-2098 INVOICE TO: (IF DIFFERENT) CONTACT INFORMATION:																					
Company: 2 & a Environmental	Company:			Cont	Contact Dave Roskolley																
Addition: 47 W 90005	Address:				Phon	e: 			<u> 726</u>	CT.7	L.y				F	Phona: Justin Kong's					
Sundy . 11t . 840 to					Fax										F	Fax:					
						Celly	ager;	Ø	15	41-	-10	35				C	elijpa	108 ne	828-52	19	
Project Number and/or P.O. #:						Final Data Baliverable Email Address:															
Project Description/Location: Rocky Mith Power 3th West See	b Station					_	Oal	ve e	υľ	re	NVI	10.	com								· · · · · · · · · · · · · · · · · · ·
ASBESTOS LABORATORY HOURS: Weekdays: 7am - 7pm					RE	QUE	STE	DA	NAL	.Y81	S			\top	V	ALI	D MA	TRIX C	DDES	LA	B NOTES:
PLM / PCM (TEM) RUSH (Same Day) PRIORITY (Next Day	/)STANDARD			1 1	-								 	_	A	7 = A			ulk = B		
(Rush PCM = 2hr, TEM = 6hr.)		-				1						1				et = 1	~		eint = P	Le	
CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 5pm Metal(e) / Dust RUSH 24 hr 3-5 Day		-		1 1					1							<u> </u>			ipe = W		4-21-4
DODA & (Streets & Maldley	"Prior notification is	1_1	Ŕ	.	1	1_1		11	Ι,	ا اء				ļ		b = 8			= Food		
Fume Scan / TCLP RUSH 5 day10 day	required for RUSH	1	9	1		夏		11					£ 140	LUM.	UNIUB	AABTO		w vvaste ■ Other	Water = WW		
Organics 24 hr. 3 day 5 Day	tumerounds.**	Point Count	ISO, 44, red Preps			Metals Scen	-		- 1				100	- <u>.</u>	ASTM	E179			media only**	-	
MICROBIOLOGY LABORATORY HOURS: Weekdays: 9am - 6pr	''''''''''''''''''''''''''''''''''''''	18		l l	Ų	量			- (4	3 _	9	퇽	2 8	<u> </u>			T		17.00.00	 	
E.coil O157:H7, Coliforms, S.aureus24 hr2 Day	3-5 Day	ugbort.	, 7402, ISO-Indi	≰		Ę.	1			5 8	6		S E	.]					1	 -	
Salmonella, Listeria, E.coil, APC, Y & M48 Hr3-5 Day	1	Long	2 6	OSHA	윩	급				挿	8,			1							
Mold RUSH 24 Hr	_46 Hr3 Day6 Day		Level R.	8	F 3	2 8	_ .	*			ð í		复写			- 1			1		
Turnaround times establish a laboratory priority, subject to laboratory volume and a apply for afterhours, weekends and holidays.	re not guaranteed, Additional foes	Short report,	3	A A	2	TCLP, Welding Furne,	표 보	7.447.	*	3 8		‡ \$	ATEM ATEM	Ę			6				
Special instructions:		Stort	TEM - AHERA, Level Semi-quant, Misso-vas,	- 7400A, 7400B.	DUST - Total, Respirable	18 TC	ORGANICS - METH	E col 0157.HT:	Listeria: +/-	E.coff: +4	Supurs	& M.	A EBRS	e Vo	(L) / Area	Matrix Code	Containers	Date	Time	EM Nu	mber (Laboratory
Client sample ID number (Sample ID's must be unique	<u></u>	큔	聖	₫	DUST -	RCRA 8,	S	******		र राष्ट्र	٥١٥	<u>8 ≻</u>	크를		3	慧	8	Collected	Collected		Usa Only)
13W10911-E	· · · · · · · · · · · · · · · · · · ·	1	X		-13		4	T		TO BI		-	- "				-	mm/ddyy	hhimm e/p		
2 3W11094-S			<u> </u>	╂╌┼				+		+-	+	+-		-1-5+	M	4	+	ulogly		82	2985
3 3w hoals - N			+		+	-	+	$\dagger \dagger$	+	-	\vdash	-	 	_	22	+		·	 	 	3 (2)
19 3W 10911 - W	·········		. _	1-1				╁	+	+			-			#	+-		-		% 7 පිහි
8 10 10 10 W			_¥_	-	-	\dashv	-	┼┤	+	╫	+	+		15	52	*	+			15	
6		1		+				╅┪	+	+	-	-		+	-		+				
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8								$\bot \bot$	4	$\perp \downarrow$	_	Щ	<u> </u>	<u> :-</u>							
9								Ш						1.	1						
10						t		T	T				\Box	Т	\Box		T				
Number of samples received: (Additional samples shall be listed on attached long form.) NOTE: REI will shall be incoming samples based upon information received and will not be responsible for errors or organized and will not																					
ensiyals as indicated on this Chain of Custody Bhall constitute an ensiytical services agreem	ent with payment terms of NET 30 days	a, felki	re to cor	nply wil	h peyin	ant ter	nsymay	resul	i in a	1.5%	nenth	ly Inte	rest surchs	rge.						ipios iai is	,
Relinquished By:	- Fed Ex			Date	/Time	: 11	lo	it	1	_			· · · · · · · · · · · · · · · · · · ·		Sam	ole C	andit			esled	Intelet
Laboratory Use Only Received By:	te/Time: //- 1				Cı	amler:	£	ہے	Œ	صح					Tem). (F°) <u> </u>	Y	BS / No Yo	s/No	No Veet
	Time 8130 u Initi	_					_	_	-	nall f				Dat	<u> </u>	11.	"	Tim	0 1050	- Initia	18 9
Contact Phone Email Fax Date	Time Initi			ntect				hone	En	nell F	ax	<u> </u>		Dat	9			Tim	е	Initia	18

Attachment I

Key to Count Sheets Count Sheets Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

Α	=	Amosite	F = Fiber
An	=	Anthophyllite	B = Bundle
C	=	Chrysotile	C = Cluster
Cr	=	Crocidolite	M = Matrix
т	=	Tremolite	

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron

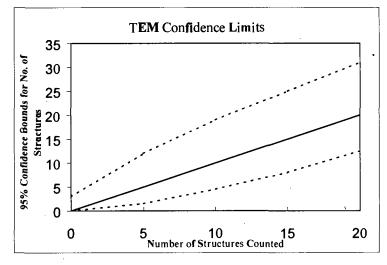
1.80 length units = 0.5 micron

18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bemard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson distribution.

Laboratory name:	REi
Instrument	JEOL 100 N S
Voltane (KV)	100 KV
Magnification	SOKX IDKX
Grid opening area (mm2)	0.010
Scale: 1L =	0,28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	N/A
QA Type	NA

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1011
Date received by lab	11/10/11
Lab Job Number:	224038
Lab Sample Number:	8 22 985

Analyzed by	-IN-
Analysis date	(1/10/0
Method (D=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	Att
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Pr	eps Only):
Fraction of primary fitter used	
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class			1 = y	es, blank	= no	
		Туре	Primary	Total	Length	Width		_Amohibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	F3- 1	ND												
- r	23-1	ND					Prep	H 20/. 11	when	- ~5	7/, debr	ک		
	C3-1	M					Pres	B 701	wo4a	e4 5	F), delor	\ <u>`</u> }		
	F4-1	M							Ran	Mr	11/10/4			1
B	941	M					,			70	7 7			
	44-6	M										,		
	G3-1	NO						·						
·	F3-1	M		5										
	· ·													
														Ray 3-2009

Laboratory name:	REI
Instrument	JEOL 100 N S
Voltage (KV)	100 KV
Magnificatkın	20KX IDKX
Grid opening area (mm2)	0.010
Scale: 1L=	0.28 um
Scale: 10 =	0.056 um
Primary filter area	385
Secondary Fliter Area (mm2)	NA
QA Type	NIA

Client :	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1011
Date received by lab	11/10/11
Lab Job Number:	224038
Lab Sample Number:	8 22 986

Analyzed by	1st
Analysis date	11/10/11
Method (O=Oirect, !=Indirect, IA=Indirect, ashed)	D.
Counting rules (ISO, AHERA, ASTM)	Att
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Preps Only):										
Fraction of primary filter used										
Total Resuspension Volume (ml)										
Volume Applied to secondary filter (ml)										

Grid	Grkl Opening	Structure	No. of Str	mctures	Dimer	nsions	Identification	Mineral Class	 	•		1 = y	es, blank	= no
		Туре	Primary	Total	Length	Width	Tuo I Killoution	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	45-4	NO						,						
	95-1	NP				2	er A	707. INTA	4 ~	5).d	bris'		,	
	†5-	NO				(nes r	~60% int	aci	257	lebro			·
	25-1	NO		— — . ···				Neof int	ne !	1/1/1	(·		
b	F3-6	2						<i>V V</i>						
	23-4	M		·										
	C3-6	W)												
	F2-6	M						·						
				,										

Laboratory name:	REI
Instrument	JEOL 100 N (S)
Voltage (KV)	100 KV
Magnification	(20KX HOKX
Grid opening ares (mm2)	0.011
Scale: IL =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

Client:	RoR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	1022
Date received by lab	Molet
Lab Job Number:	274038
Lab Sample Number:	822987

Analyzed by	JM
Analysis date	alula
Method (O=Direct, I=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grkl storage location	Month Analyzed
Scope Alignment	Date Analyzed

F-Factor Calculation (Indirect Pro	eps Only):
Fraction of primary filter used	
Total Resuspension Volume (mi)	
Volume Applied to Secondary filter (mi)	

Grid Opening	Structure			Dimensions_		Identification	Mineral Class				1 = yes, blank = no		
	Туро	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
63-3	M				:								
F3-3	ND			8	mp	A 8	Oh in fant		3-5	e/ debris			
E3-3	ND			ρ	w)_	B 60	% in for	+	3-5	% debivs			
C3-3	M			,	7		1	4		,			
K6-3	ND						4	Bur	ulu	4			
H6-3	ND												
616-3	ND												•
(96-1	NT					- 18							
	63-3 E3-3 C3-3 K6-3 H6-3 G16-3	GIG OPENING TYPO G3-3 ND E3-3 ND C3-3 ND K6-3 ND H6-3 ND	GIG Opening Typo Primary GI3-3 MD E3-3 MD C3-3 MD K6-3 ND H6-3 ND GI6-3 ND	F3-3 ND E3-3 ND E3-3 ND E3-3 ND E3-3 ND H6-3 ND G16-3 ND	Typo Primary Total Length	F3-3 ND K6-3 ND Galo-3 ND Frimary Total Length Width C3-3 ND C3-3 ND Galo-3 ND	Typo Primary Total Length Width Identification G13-3 M	F3-3 ND F3-3 ND F3-3 ND F3-3 ND F3-3 ND F3-3 ND F3-3 ND F3-3 ND F3-3 ND F4-3 ND F4-3 ND F4-3 ND F4-3 ND	F3-3 ND Kb-3 ND Kb-3 ND Kg-3 ND	Typo Primary Total Length Width Amphibole C NAM	Typo Primary Total Length Width Amphibole C NAM Sketch/Comments	Grad Opening Typo Primary Total Length Width amphibole C NAM Sketch/Comments Sketch (333 M) Rup A 80% in fruit 3-5% debrus (3-3 ND Rup B Width Amphibole C NAM Sketch/Comments Sketch (333 M) Rup A 80% in fruit 3-5% debrus (3-3 ND Rup B Width Amphibole C NAM Sketch/Comments Sketch (46-3 ND Rup A 80% in fruit 3-5% debrus (46-3 ND Rup B R	Typo Primary Total Length Width Amphibole C NAM Sketch/Comments Sketch Photo (3-3 N) (3-3 N) (3-3 N) (3-3 N) (3-3 N) (3-3 N) (3-3 N) (3-3 N) (3-3 N) (3-3 N) (3-3 N) (3-3 N)

Laboratory name:	REI
Instrument	JEOL 100 N S
Voltage (KV)	100 KV
Magnification	(20KX 10KX
Grid opening area (mm2)	0.011
Scale: IL=	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA TVpe	

Client :	RoR
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	357
Date received by lab	1/10/11
Lab Job Number:	274038
Lab Sample Number:	822988
	•

<u> </u>
alula
D
4.1 / /
AH (mod
Month Analyzed
Date Analyzed

F-Factor Calculation (Indirect Preps Only):

Fraction of primary filter used	eps Only).
Total Resuspension Volume (ml)	
Volume Applied to secondary filter (ml)	

*Volume below AHERA minimum Analytical Sensitivity not reached

Grid	Grid Opening	Stmcture	No. of St	io. of Structures		nsions	Identification	Mineral Class				1 = yes, blank = no		
		Туре	Primary	Total	Length	Width		Amphibole	`c	NAM	Sketch/Comments	Sketch	Photo	EOS
A	K4-6	ND			·	;		/						
	H4-6	ND				Pus	A 8	7 Linko	[-	3-	ho do mi	.		
	64-6	ND				Puss	BN	4		1				
	F4-6	M							Bon	l u	Via /11			
13	KB-4	ND						//		/	7			
	46-4	W							·					•
	66-4	M												
<u>,</u>	F6-4	M												
	65-6	1/17												
	6-57	W)									·			

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, s/cc = $\frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000cc}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening



November 15, 2011

Laboratory Code:

RES

Subcontract Number: Laboratory Report:

NA

Project # / P.O. #

RES 224232-1 None Given

Project Description:

Rocky Mtn. Power 3rd

West Sub Station

David Roskelley
R & R Environmental
47 West 9000 South #2
Sandy UT 84070

Dear Customer,

Reservoirs Environmental, Inc. is an analytical laboratory accredited for the analysis of Industrial Hygiene and Environmental matrices by the National Voluntary Laboratory Accreditation Program (NVLAP), Lab Code 101896-0 for Transmission Electron Microscopy (TEM) and Polarized Light Microscopy (PLM) analysis and the American Industrial Hygiene Association (AIHA), Lab ID 101533 - Accreditation Certificate #480 for Phase Contrast Microscopy (PCM) analysis. This laboratory is currently proficient in both Proficiency Testing and PAT programs respectively.

Reservoirs Environmental, Inc. has analyzed the following samples for asbestos content as per your request. The analysis has been completed in general accordance with the appropriate methodology as stated in the attached analysis table. The results have been submitted to your office.

RES 224232-1 is the job number assigned to this study. This report is considered highly confidential and the sole property of the customer. Reservoirs Environmental, Inc. will not discuss any part of this study with personnel other than those of the client. The results described in this report only apply to the samples analyzed. This report must not be used to claim endorsement of products or analytical results by NVLAP or any agency of the U.S. Government. This report shall not be reproduced except in full, without written approval from Reservoirs Environmental, Inc. Samples will be disposed of after sixty days unless longer storage is requested. If you have any questions about this report, please feel free to call 303-964-1986.

Sincerely,

Jeanne Spencer Orr

President

RESERVOIRS ENVIRONMENTAL, INC.

NVLAP Lab Code 101896-0; TDH: #30-0015

TABLE I. TEM AIR FILTER SAMPLE DATA AND ANALYTICAL RESULTS

RES Job Number:

RES 224232-1

Client:

R & R Environmental

Client Project Number / P.O.: None Given

Client Project Description:

Rocky Mtn. Power 3rd West Sub Station

Date Samples Received:

November 14, 2011

Analysis Type:

TEM, AHERA

Turnaround:

24 Hour

Date Samples Analyzed:

November 15, 2011

Client ID Number	Lab ID Ni	umber	Area Analyzed	Air Volume Sampled	Number of Asbestos Structures Detected	Analytical Sensitivity	Asbestos Concentration	Filter Loading
			(mm²)	(L)		(s/cc)	(s/cc)	(s/mm²)
3W 111111-E	EM	824075	0.0900	887	ND	0.0048	BAS	BAS
3W 111111-S	EM	824076	0.0900	886	ND	0.0048	B AS	BAS
3W 111111-N	EM	824077	0.0900	882	ND	0.0049	BAS	BAS
3W 111111-W	EM	824078	0.0900	882	ND	0.0049	BAS	BAS

NA = Not Analyzed

Filter Material = Mixed Cellulose Ester

ND = None Detected

Filter Diameter = 25 mm

BAS = Below Analytical Sensitivity

Effective Filter Area = 385 sq mm

Average Grid Opening in mm² = 0.010

DATA QA

Due Date:	- Hate 11-12:11
Due Time:_	Som

Reserveirs Environmental, Inc. 5801 Logan St. Danver, CO 80210 • Ph: 303 694-178 • Faz 303-477 4275 • Toll Free :805 RESI-ENV

Job#_			
Page	1	of	

Pager: 303-609-2098 INVOICE TO: (IF DIFFERENT) **CONTACT INFORMATION:** comect Dave Roskellex Empormenta Kaggis Addmys: Cell/pagen QD 1 541-1035 821 828-5219 Project Number wellin P.O. # Project Description/Location: Clocky Milin Power 3th West Sub Station Care mentoson ASBESTOS LABORATORY HOURS: Weokdays: 7am - Tpm REQUESTED ANALYSIS **VAUD MATRIX CODES** LAB NOTES: PLM / PCM /TEM RUSH (Bame Day) PRIORITY (Next Day) STANDARD Alr = A Bulk . B (Rush PCM = 2hr, TEM = 6hr.) Dust ≈ D Paint = P CHEMISTRY LABORATORY HOURS: Weekdays: 8am - 8pm Soil = S Wipe - W ____RUSH ___ 24 hr. ___3-6 Day Matal(a) / Dust Swab = SW F = Food **Prier netMeation is RCRA 8 / Metala & Welding Dilnking Water = DW Waste Water = WW ð regulated for RUSH Short report, Long report, Point Count __ RUSH ____ S day ____10 day Puma Sean / TCLP O = Other luntereunde.** Organice 24 hr. ___ 3 day ___B Day "ASTM E17W approved wipe media only" 8 MICROBIOLOGY LABORATORY HOURS: Wookdays: 9am - 9pm WETALS - Analyte(s) RCRA 8, TCLP, Welding Fume, E.coll 0187:H7, Colifernis, S.aurees ____ 24 hr. ____2 Day OSHA _48 Hr. ____3-5 Day Salmonella, Listaria, C.coll, APC, Y & M DUST - Total, Respirable MoM RUSH ____24 Hr ____48 Hr ____3 Day _ S Day ORGANICS - METH "Tumeround times actobilen s laboratory pitosily, aubject to laboratory voluma and era not guamniced. Additional loca opply for attarlioure, waokanda and holidays.** # Containers Matrix Code Special Instruction: EM Number (Libertary Date Time Une Only) Collected Collected Client sample ID number (Sample ID's must be unique) mm/dd/yy hh/mm a/p 1/31/11/11- F 88. ululu 344 Mill - 3 1366 illili - M 4 36 min - W 8 10 Number of eamples received: (Additional eamples shall be listed on attacted long term.) NOTE: REI sed analyze instanting samples believ upon lifetimetion received gate will not be responsible for errors or ordisators in calculations resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis and resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis and resulting from the inaccuracy of original data. By signing client/company representative agrees that submission of the following samples for requested analysis and representative agrees that submission of the following samples for requested analysis and representative agrees that submission of the following samples for requested analysis and representative agrees that submission representative agrees the submission representative agrees the submission representative ululu Relinquished By: Data/Time: Sample Condition: On lee Sealed Intact Laboratory Use Only Temp. (F°) Yes / No Yes / No TBs / No Received By: Canier: Results: Phone Email Fax Time 9:202 \Confact Phone (Email Fax Date Contact Time Initials CG Phone Email Fax Date Phone Email Fax Time Contact Date Time Initials 2894

Attachment I

Key to Count Sheets
Count Sheets
Analytical Procedures

Structures identifications consist of an Asbestos Type followed by a Structure Type

Asbestos Type

Structure Types

		•		
Α	=	Amosite	F =	Fiber
An	=	Anthophyllite	B =	Bundle
\mathbf{C}	=	Chrysotile	C =	Cluster
\mathbf{Cr}	=	Crocidolite	M =	Matrix
Т	=	Tremolite		

ND = no structures detected

M = other structure associated with a matrix

NAM = Non Asbestos Mineral

XGB = partly obscured by a grid bar

Sizing Conversion

1 length unit = 5 mm on screen = 0.278 micron

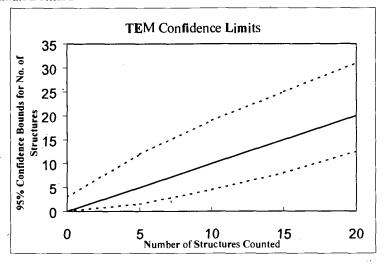
1.80 length units = 0.5 micron

18.0 length units = 5 microns

1 width unit = 1 mm on screen = 0.0556 micron

TEM Analysts

Jeanne S. Orr Nathan DelHierro Angela Heitger Jonathan Bemard Paul D. LoScalzo Mark Steiner Norberto Zimbleman Robert Workman



Upper and lower 95% confidence bounds for the number of structures counted assuming a Poisson'distribution.

Laboratory name:	REI
Instrument	JEOL 100/N S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 10 =	0.05S um
Primary litter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

R+R
A
887
11/14/11
224232
824075

Lab Sample Number:	824075			
F-Factor Calculation (Indirect Pro	eps Only):			
Fraction of primary fitter used				
Total Resuspension Volume (ml)				
Volume Applied to secondary fitter (ml)				

Analyzed by	JB
Analysis date	ulisto
Method (D=Dlrect, I=Indirect,	17.
IA=Indirect, ashed)	
Counting rules	
(ISO, AHERA, ASTM)	AH_
Grid storage location	Month Analyzed
Scope Alisnment	Date Analyzed

6	irid Gri	Grid Opening	Structure	No. of Structures		Dimensions		- Identification	Mineral Class			1 = yes, blank = no			
	and Gi	id Opening	Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Pfioto	EDS
-	K	5-3	ND												
		15-3	ND			P.	14A_/	80	he n funt	7	-10%	deba's			
	(95-3	ND			P	الم	3 ~ A			· 				
	F	5-3	ND						/						,
	E	5-3	ND				7. t	4	K 11/15/11				-		
Ĩ	3_H	10-4	ND					//						,	
	G	16-4	ND												
_	F	6-4	ND			·									
		-6-4	ND												
															Rev 3-300

·	
Laboratory name:	REI
Instrument	JEOL 100 (N) S
Voltage (KV)	100 KV
: Magnification	(20KX) 10KX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	·
QA Type	

7EM ASPESTOS OF COUNT						
Client:	RAR					
Sample Type (A=Air, D=Dust):	A					
Air voluma (L) or dust area (cm2)	886					
Date received by lab	111411					
Lab Job Number:	224232					
Lab Sample Number:	824076					

F-Factor Calculation (Indirect Pr	reps Only):
Fraction of primary filter used	1
Total Resuspension Volume (mi)	
Volume Applied to secondary filter (ml)	

Analyzed by	-m3
Analysis date	uloslo
Method (D=Direct, l=Indirect, IA=Indirect, ashed)	D
Counting rules (ISO, AHERA, ASTM)	AH
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

	Grid	Grid Opening	Structure	No. of St	ructures	Dime	nsions	Identification	Mineral Class				1 = y	es, blank	= no
	O.	Jone Opening	Type	Primary	Total	Length	Wkith	TOO THE TOO TO THE	Amphibole	С	·NAM	Sketch/Comments	Sketch	Ptioto	EDS
٠	A	K6-1	MD												
	·	H6-1	ND		. 	-			· ·		·				
_	·	G6-1	ND			Pu	y) 5	AB	~80%	. vid	zut	3-7%	del	1.	
		F6-1	ND												
		E6-1	ND						B (1)	5/4					
	B	K4-3	ND						/ ./	,			·]		
		H4-3	ND						~	•					
		614-3	ND			·					,				
		F4-3	W)									-			
							·								

Rev 3-2009

Laboratory name:	REI
Instrument	JEOL 100 (N) S
Voltage (KV)	100 KV
Magnification	(20KX) toKX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D =	0.056 um
Primary fitter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	

- I WIN VONCOLOS OF	motary goarre
Client:	R+R
Sample Type (A=Air, D=Dust):	A
Air volume (L) or dust area (cm2)	882
Date received by lab	(ત)મીલ
Lab Job Number:	224232
Lab Sample Number:	824077

F-Factor Calculation (Indirect P	1	
Fraedon of primary filter used		
Total Resuspension Volume (mi)		
Volume Applied to secondary filter	<u> </u>	

Analyzed by	JB
Analysis date	ulasla
Method (D≃Olrect, I=Indirect,	77.
IA=Indirect, ashed)	D.
Counting rules ·	
(ISO, AHERA, ASTM)	A.H
Grid storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class	·			1 = y	es, blank	= no
ί,		Туре	Primary	Total	Length	Width		Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	Hu-1	ND											, .	
	6,4-1	ND.				Pn	0 d 7	o'lenta.	ļ , }	5-7	Ldebns			
	F4-1	ND				Pa	0 6	o'b inhu	f	5-70	lo debnis			
	E4-1	ND					l .							<u> </u>
	C4-1	ND			,			13	uh	/4				
B	H4-4	ND						· /.	7	<i>/</i>				
	614-4	ND						_	,					
	F4-4	ND										-		
	E4-4	W									7			
								·						Pay 3-2000

Laboratory name:	REI
Instrument	JEOL 100 (N) S
Voltage (KV)	100 KV
Magnification	(20KX) 10KX
Grid opening area (mm2)	0.011
Scale: 1L =	0.28 um
Scale: 1D=	0.056 um
Primary filter area (mm2)	385
Secondary Filter Area (mm2)	
QA Type	`

Client :	R+R
Sample Type (A=Alr, D=Dust):	A
Air volume (L) or dust area (cm2)	882
Date received by lab	1114/11
Lab Job Number:	224232
Lab Sample Number:	824078

F-Factor Calculation (Indirect Preps Only):								
Fraction of primary filter used								
Total Resuspension Volume (ml)								
Volume Applied to secondary filter (mi)								

Analyzed by	JB
Analysis date	11/15/11
Method (D=Direct, l=Indirect,	
IA=IndirecL ashed)	D .
Counting rules	
(ISO, AHERA, ASTM)	AH
GrM storage location	Month Analyzed
Scope Alignment	Date Analyzed

Grid	Grid Opening	Structure	No. of Str	uctures	Dime	nsions	Identification	Mineral Class		· · · · ·	·	1 = y	es, blank	= no
Gild	Cita Opening	Тура	Primary	Totai	Length	Wkith	Identification	Amphibole	С	NAM	Sketch/Comments	Sketch	Photo	EDS
A	K5-6	ND												
	H5-6	ΛD			{		A 81	The internal	,	5- 7	% dehn's			
	195-le	ND			Ī	ميم	B /a	Dolom tan		5- <i>7</i> -	La debris			
	F5-6	ND				ŭ								
	E5-6	M						48	u/	5/11			·	
B	F4-6	ND			_4			/1	1	7				
_	E4-6	VD												
	C4-6	ND												
	34-6	ND												
						·								

Analytical Procedures – AHERA

Transmission electron microscopy/energy dispersive X-ray spectrometry/selected area electron diffraction (TEM/EDX/SAED) was employed in the analysis of the samples, which were collected on 25 mm mixed cellulose ester air filters. A portion of each filter was collapsed with acetone and etched in a plasma asher. The etched filter was then coated with a thin layer of carbon in a carbon side down. The sample was then placed inside a condensation washer and treated with acetone to remove the filter matrix and expose any inert material.

For each sample, enough grid openings on a 200 mesh TEM grid are analyzed to ensure an analytical sensitivity of at least 0.005 structures/cc. A minimum of four grid openings from two preparations are analyzed for each sample. The grid openings are searched for fibrous structures which, if present are analyzed by SAED and/or EDX (elemental analysis). The AHERA protocol requires SAED confirmation of enough chrysotile asbestos structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures). Both SAED and EDX confirmation are required of enough amphibole structures on each sample to cause the sample to exceed 70 structures/mm² (usually 4 or 5 structures) per sample. Either SAED or EDX is required for the remaining asbestos structures of either type. The morphology of each structure is determined and the length and the diameter of any asbestos structures are recorded. Asbestos fibers, bundles, cluster and matrices were identified and recorded. The asbestos structures have been defined in AHERA as follows:

Fiber: is a structure having a minimum length greater than or equal to 0.5

micron with an aspect ratio of 5:1 or greater with substantially parallel

sides.

Bundle: is a structure composed of three or more fibers in parallel arrangement,

with each fiber closer than the diameter of one fiber.

Cluster: is a structure with fibers in random arrangements such that all fibers are

intermixed and no single fiber is isolated from the group.

Matrix: is a fiber or fibers with one end free and the other end embedded or

hidden by a particulate. The exposed fiber end must meet the fiber

definition given above.

If more than 50 asbestos structures are identified and confirmed on a sample, AHERA analysis may be terminated after completion of the grid opening, which contains the 50th structure. AHERA protocol requires the laboratory to reject any clearance sample which contains in excess of 25% total particulate loading or which appears to be unevenly loaded.

The AHERA protocol includes specific sampling requirements, including minimum numbers of samples and minimum air volumes. Specifically, the 70 structures/mm² clearance criteria is only allowed for sets five inside samples (collected in a group of 13 samples including: five outsides and three blanks) with volumes greater than 1200 liters (40 CFR Part 763, page 41894). Deviation from the AHERA sampling protocol may affect the validity of the analytical results. Analysis of samples collected by non-protocol methods are not accredited by NVLAP

Equations Used for Calculations

Area Analyzed, mm² = # GO counted x Average GO Area (mm)

Concentration, s/cc = $\frac{\text{\# Asbestos Structures}}{\text{\# GO Counted}} \times \frac{1}{\text{Volume (L)}} \times \frac{\text{Eff. Filter Area (mm}^2)}{\text{Average GO area (mm}^2)} \times \frac{1L}{1000\text{cc}}$

Filter loading, s/mm² = # Asbestos structures Area Analyzed (mm²)

GO = TEM grid opening